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The Formation of Community-Based Organizations: An Analysis of a Quasi-Experiment in Zimbabwe

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Summary. — Previous analyses of the formation and composition of community-based organizations (CBOs) have used cross section data. So, causal inference has been compromised. We obviate this problem by using data from a quasi-experiment in which villages were formed by government officials selecting and clustering households. Our findings are as follows: CBO co-memberships are more likely between geographically proximate households and less likely between early and late settlers, members of female-headed households are not excluded, in poorer villages CBO co-membership networks are denser and, while wealthier households may have been instrumental in setting up CBOs, poorer households engage shortly afterward.

Key words — Community-based organizations, quasi-experiment, social networks, Africa, Zimbabwe

1. INTRODUCTION

Recent years have witnessed a renewed policy interest in community-based development (Mansuri & Rao, 2004). This interest is predicated on the idea that community involvement in the planning and execution of policy interventions leads to more effective and equitable development. In practice, community-based interventions are often channeled through Community-Based Organizations (CBOs). In one critical respect this practice is well founded: CBOs often emerge and play an important role in providing public goods and in resolving collective action problems when formal institutions are deficient (Coleman, 1988; Ostrom, 1990; Putnam, 2000). For this reason, they are particularly important in poor countries where the government is unable or unwilling to provide much needed social services, especially in rural areas (Edwards & Hulme, 1995; Fafchamps, 2006).

However, whether effective and equitable development can be achieved by assisting CBOs ultimately depends on their composition and on where they do and do not emerge. If CBOs are composed of local elites, interventions channeled through them are likely to reflect the preferences and interests of those elites (Platteau & Gaspart, 2003). Similarly, if CBOs form along gender or ethnic lines, their mode of operation is likely to reflect the interests of specific gender or ethnic groups rather than the interests of the community as a whole. More generally, if existing socio-economic cleavages are reflected in the composition of CBOs (by exclusion of individuals who do not have certain characteristics or through segmentation) this may negatively affect social cohesion and solidarity (De Bock, 2014). Finally, if CBOs tend not to emerge in the poorest communities, then communities in greatest need of assistance could miss out on important development opportunities. An understanding of the emergence and composition of CBOs is thus of major policy interest.

Arcand and Fafchamps (2012) investigate CBO membership and co-membership, i.e., who is linked to whom as a result of belonging to the same CBOs in Senegal and Burkina Faso. They find that more prosperous members of rural society are more likely to belong to CBOs and that members of ethnic groups that traditionally focus on raising livestock rather than on crop cultivation are less likely to belong to CBOs. They also find that CBO membership is assortative on wealth and ethnicity, i.e., that the wealthy tend to group with the wealthy and the poor with the poor, and that different ethnic groups tend not to group together. These are the sort of group formation patterns that ought to be of potential concern for development practitioners.

In common with a large literature on the role of social networks in risk and information sharing within agrarian communities of Africa (e.g., De Bock, 2014; De Weerdt, 2004; Dekker, 2004; Fafchamps & Gubert, 2007; Krishnan & Sciubba, 2009; Udry & Conley, 2004), Arcand and Fafchamps (2012) rely on cross-section data. This literature provides vital descriptive information on group composition, but cannot always satisfactorily address issues of causality. Specifically, it cannot always tell whether similarities cause people to associate with one another or whether association causes people to become more similar. [1] The issue of reverse causation does not arise for gender or ethnicity since these are, in principle, immutable. But when the characteristics of

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interest are income, wealth, and prosperity broadly defined, causal ambiguity needs to be resolved. Furthermore, cross-section data do not facilitate the identification of causal effects running from community composition to CBO formation, an issue that arises both for mutable characteristics such as wealth as well as, via selection effects, for immutable individual characteristics such as gender and ethnicity.

In this paper, we obviate these concerns by focusing on data from a *de facto* quasi-experiment resulting from actions taken over a quarter of a century ago by the, then, newly formed Zimbabwean government. After the Zimbabwean war of independence in 1980, many people displaced by the fighting were resettled in newly created villages. These resettled villages were created by government officials selecting households from lists of applicants.[2] Thus, unlike traditional villages that are organized along kinship lines, these new villages brought together households that were typically unacquainted with each other, often of different lineage and diverse in terms of wealth (Dekker, 2004).[3] Yet, in order to survive and prosper, the inhabitants of these newly created villages had to solve various collective action problems relating to natural resource management, risk management, indivisibilities in inputs to agrarian production, and inadequate access to financial and other services. The creation of new villages with households selected at random forms a quasi-experiment that offers a unique opportunity to study the community formation process.[4]

The nature of the quasi-experiment is similar to the random assignment of roommates to dorms or classes studied by Sacerdote (2001) and others (e.g., Lyle, 2007; Shue, 2012) or to the random assignment of entrepreneurs to judging committees engineered by Fafchamps and Quinn (2012). The difference is that we do not use random assignment to study peer effects but rather to study assorting and group formation between people who have been randomly brought together. Perhaps the closest analogy to what we do is the Big Brother TV show: people from different backgrounds are thrown together into the House, and viewers study the friendships and cliques they form over time. In this case, the government of Zimbabwe grouped previously unassociated households together in new villages and we study the CBOs those households form over time.

We show that, to varying degrees, the 15 studied villages addressed collective action problems by setting up CBOs. We investigate CBO formation using data on the geography of the newly formed villages, kinship and lineage networks between resettled households, and the characteristics of the households at the time of their resettlement. We focus our analysis on two specific questions—who groups and who groups with whom—using only household characteristics at the time of resettlement. We investigate for how long these characteristics affect CBO formation and co-membership over time. We focus our analysis on CBOs that have an economic—as opposed to purely social—purpose. Earlier analysis (Barr *et al.*, 2012) shows that co-memberships in these CBOs are more predictive of group formation in incentivized lab-type experiments, suggesting that, relative to other co-memberships, they are stronger and probably more valuable.

We make use of a unique dataset combining information from multiple sources: a panel survey of households that ran from 1983 to 2000; detailed retrospective data on CBO membership collected in 2000; genealogical data collected in 1999 and 2001; lineage data collected in 2001 and 2009; and village geography data collected in 1999 and 2009. Merging, completing, and reconciling (to the extent possible) these datasets took many months of work by the authors and researchers in the field in Zimbabwe. To our knowledge this is the first dataset on small farming communities that combines detailed information on socio-economic characteristics with a wide range of intra-village social ties over such a long period of time.

The analysis reveals that the studied communities do not appear to be elitist. We find that, by the end of 1982, at a time when almost 90% of sampled households had settled in the new villages, wealthier households had already formed CBOs to serve a variety of economic purposes. Poorer households initially tended not to engage in CBOs but, by 1983, this difference had disappeared. Wealthier households may have been the ones who initiated CBOs because clearing land, planting crops, and building houses on uninhabited land proved easier for them. What is remarkable is that poorer households were allowed to join without apparent prejudice as and when their circumstances allowed.

The analysis further shows that the network of CBO co-memberships is denser in poorer villages. Why this is the case is not entirely clear. One possibility is that they had a greater need to organize in order to address indivisibilities in agrarian inputs and to cope with risk. This pattern persists throughout the eighteen post-resettlement years covered by our dataset. In addition, we find strong evidence *against* the separation of female- and male-headed households into different CBOs. There is, however, some evidence that the female-headed households are involved in fewer CBOs. Cause for concern is raised only by evidence that those who settled early and those who settled late associate less with one another than those who settled at the same time. There is also weak evidence that non-Zimbabwean households are less engaged in CBO activities. Within these small resettled villages, geographical proximity affects CBO co-membership only in early years: by 1985 we observe no affect of proximity on who groups with whom. The effect of kinship on co-membership is similarly occasional and ephemeral. Shared lineage has no bearing on co-membership, although, at the community level, we find evidence that shared lineage and CBO activity are substitutes.

Since households in our dataset generally had little to no interaction with one another before they came to the new villages, these findings can be fairly safely given a causal interpretation. But there is a downside: given their artificial creation process, the study villages are not representative of developing-country villages in general or even of Zimbabwean villages. This limitation of the study needs to be born in mind when considering the external validity of our findings. It should be noted, however, that new communities made up of displaced people are not uncommon in the developing world, especially in post-conflict situations. In this context, findings such as ours are both rare and of potential value to development practitioners.

The remainder of the paper is organized as follows. In Section 2 we introduce various hypotheses of interest regarding CBO formation in resettled villages, and we propose an empirical model that distinguishes between them. In this model co-membership in CBOs is a function of geographical, social, and economic proximity. In Section 3 we describe our data sources in detail. In Section 4 we present descriptive statistics regarding the evolution of CBO co-memberships between from 1980–2000 in each of the fifteen villages in our sample. In Section 5 we present estimation results for an extensive series of regressions corresponding to the specification presented in Section 2. In Section 6 we present a circumspect (owing to the fact that there are only fifteen villages in our sample) but nevertheless informative analysis of CBO co-membership at the village-level. In Section 7, we return to the dyadic analysis armed with new insights from the village-level analysis and we investigate what happens when we divide the sample according to one specific, village-level characteristic. Finally, in Section 8 we discuss our findings and consider why they differ from those of Arcand and Fafchamps (2012) and what this implies for the generality of each study's findings.

2. ANALYTICAL FRAMEWORK AND EMPIRICAL SPECIFICATION

CBOs provide a basis for collective action, in part, because they allow trust between individual members to develop. Trust can have different origins. It may arise from a shared lineage or kin group, but we expect this source of trust to be less important in our study villages, given the way they were formed. Another possible source, common to all households in our study, is the prospect of a future in close proximity with one another. This prospect would generate a need for each person to develop and maintain a reputation of trustworthiness that, combined with self-interest, may be sufficient to support trust and reciprocation. This hypothesis was articulated by Posner (1980) and subsequently formalized by Coate and Ravallion (1993).

Households differ in the cost of joining a CBO, and in the benefits they can hope to derive. We therefore expect some differentiation across households in terms of CBO membership. First, as pointed out by Arcand and Fafchamps (2012) and others before them, pre-existing kinship ties and shared lineage may favor trust-reinforcing altruism.[5] Second, similarity in socio-economic characteristics such as age, household composition, or wealth may reduce the costs of developing an acquaintance on which trust and more valuable forms of association can be built. Third, physical proximity increases the frequency of chance encounters and reduces the costs of maintaining regular contact. Fourth, a households' early arrival in the village may create a shared sense of pioneering camaraderie, resulting in a feeling of entitlement and responsibility in village affairs. With the arrival of additional households, these feelings may have turned into resentment toward latecomers who brought additional pressure on shared resources and could free ride on collective actions initiated prior to their arrival.

Turning to the benefits of setting up CBOs, these too vary across households and villages. We expect poorer households to find indivisibilities in agricultural inputs harder to overcome on their own. For example, a rich household could afford a ploughing pair of oxen. But a less fortunate one could only afford a ploughing pair by sacrificing consumption and a poor household could not afford one on their own. We also expect poorer households to have a greater need for informal insurance via risk pooling. We therefore expect rich and poor households to have different interests in CBOs.

The benefits associated with setting up CBOs also depend on whether alternative mechanisms exist for addressing collective problems. Forming a CBO signals commitment to a common cause. Membership fees (in money or in kind) can act as a material pre-commitment to that cause. However, collective agreements can also be enforced via kin- or lineage-based mechanisms involving well-established behavioral norms enforced through lateral and hierarchical pressure. For kin- and lineage-based mechanisms to facilitate collective action in the resettled villages, the kin or lineage network must be sufficiently dense. Since settlers were rarely settled with their close kinfolk, this is unlikely to have played an important role in our study villages. However, authorities tended to assign to a new village those settlers coming from the surrounding areas. Hence the lineage network may have been sufficiently dense in some villages. Working with a cross-section of the data used here along with data from six traditional villages, Barr (2004) found less CBO membership in villages with denser lineage networks. This is consistent with CBOs and lineage networks being substitute bases in the provision of local public goods.

The various hypotheses described above can all be captured within a dyadic model of link formation of the form proposed by Fafchamps and Gubert (2007) and Arcand and Fafchamps (2012). The model takes the general form $m_{ij} = \lambda(x_{ij})$ where m_{ij} is the number of CBO co-memberships that i and j share. Function $\lambda(.)$ depends on a vector x_{ij} that includes factors that affect the number and size of the groups that i and j belong to, and factors that affect the likelihood that i and j belong to the same group. More about this later.

When estimating a dyadic regression, the main technical difficulty is to obtain consistent standard errors owing to interdependence across m_{ij} s. This interdependence could tempt one into estimating a joint maximum likelihood function. There are several problems with this approach, however. First, estimation requires solving a complicated optimization problem with multiple integrals. This can, in principle, be achieved—e.g., using the Gibbs algorithm—but at a non-negligible cost in terms of programing. Second and more importantly, writing down the joint likelihood function forces the researcher to specify the functional form of the interaction between observations. Theoretically, this can improve efficiency, but it can also result in inconsistent estimates if the specified form of interaction is wrong. So, we opt for one of the simpler and more transparent approaches applied to analyses of this type. Among these approaches, the most extensively used are the quadratic assignment permutation method (QAP), developed by Krackhardt (1987), and the dyadic robust standard error regression approach developed by Fafchamps and Gubert (2007).[6] We use the latter primarily because it easily allows pooling data across disjoint populations.

The estimation of dyadic models requires some care regarding the way regressors are incorporated (Fafchamps and Gubert; 2007). In our case, the network matrix $M = [m_{ij}]$ is symmetrical: if i belongs to the same CBO(s) as j, by construction j also belongs to the same CBO(s) as i, i.e., $m_{ij} = m_{ji}$. To ensure that $E[m_{ij}] = E[m_{ji}]$ regressors must enter the model in a symmetric fashion. This condition is satisfied by models of the following form:

$$m_{ij} = \beta_0 + \beta_1 l_{ij} + \beta_2 g_{ij} + \beta_3 |z_i - z_j| + \beta_4 (z_i + z_j) + v_{ij} + \varepsilon_{ij}$$

where l_{ij} is a vector of network linkage variables such as kinship and shared lineage, g_{ij} is the geographical distance between i and j, z_i is a vector of household characteristics such as the wealth of i or the year of i's arrival in the village, v_{ij} is a vector of village fixed effects, ε_{ij} is the dyadic error term, and β_0, β_1, β_2, β_3 and β_4 are the coefficients to be estimated.

A significantly positive (negative) β_1 coefficient indicates that the corresponding l_{ij} variable increases (reduces) the number of CBO co-memberships that i and j share. A significantly negative β_2 indicates that the number of co-memberships declines as the geographical distance between i and j increases. A significantly negative (positive) β_3 coefficient indicates that the number of co-memberships that i and j share increases if they are more (less) similar in z_i. A significantly positive β_4 coefficient identifies a characteristic associated with more CBO memberships or with memberships in larger CBOs.[7] Finally, if the village fixed effects, v_{ij}, are jointly significant, this indicates that there are village-level differences in the density of the CBO networks. To the extent that l_{ij}, g_{ij}, and z_i affect average group formation and vary across villages, this is captured in the village fixed effects and this could reduce the significance of the coefficients β_0, β_1, β_2, β_3 and β_4. However, as mentioned above when discussing the role of lineage, there is no a priori reason to expect a particular regressor to have a similar effect at the dyad and village level. In this case, the inclusion of the village fixed effects can improve efficiency and increase the significance of the coefficients β_0, β_1, β_2, β_3 and β_4.

The analysis involves the estimation of a series of dyadic models using m_{ij} as the dependent variable. We also estimate an alternative linear probability model using $d_{ij} = 1$ if $m_{ij} > 0$ and $=0$ if $m_{ij} = 0$ as the dependent variable.[8] We estimate these two models for each year for which we have relevant data, that is, starting with 1982 when village settlement is nearly complete, and ending with 2000 when insecurity in Zimbabwe forced us to stop data collection. In all cases, the regressors relate to the dyadic baseline. This is the point in time when both households in the dyad are resettled—typically a year between 1980–84. Regressors are described in detail in the next sections.

We also conduct a series of village-level linear regressions, one for each year. Given the small number of observations—there are only 15 villages in our dataset—this raises doubts regarding the power of our analysis. In spite of this shortcoming, one important effect is nonetheless confirmed.

Table 1. *Households resettling in and departing from the 15 villages year-by-year*

Year	No. settling	No. departing	No. of households in villages	% of full sample in villages (%)
1980	161	0	161	31.9
1981	189	0	350	69.4
1982	101	0	451	89.5
1983	17	0	468	92.9
1984	2	0	470	93.3
1985	6	1	475	94.2
1986	2	2	475	94.2
1987	6	0	481	95.4
1988	4	0	485	96.2
1989	2	0	487	96.6
1990	1	1	487	96.6
1991	2	0	489	97.0
1992	4	0	493	97.8
1993	0	0	493	97.8
1994	1	0	494	98.0
1995	1	0	495	98.2
1996	2	0	497	98.6
1997	1	0	498	98.8
1998	2	1	499	99.0
1999	0	0	499	99.0
2000	0	0	499	99.0
Totals	504	5		

Source: ZRHDS.

3. DATA SOURCES, SAMPLES AND DEFINITIONS

In 1980, the Government of Zimbabwe aimed at resettling 18.000 displaced households over a period of five years. By March 1982, 12 schemes accommodating 5,070 settler families had been established (Kinsey, 1982) and by 1989 a total of 52,000 families had been relocated (Palmer, 1990). In this paper we use data on 15 randomly selected villages from 2 of the 12 schemes that were established by March 1982.[9] The two schemes differ from one another in terms of suitability for agriculture.[10] One of the two selected schemes is comparable to two of the schemes established in the same period, while the second is comparable to six other schemes. The remaining four schemes are situated in environments less suitable for crop production (Kinsey, 1982) and are not included in our analysis.

Resettled households started to arrive in the fifteen sample villages in 1980 (see Table 1). The inflow peaked in 1981 and almost 90% of sample households had settled by the end of 1982. After 1982 the household composition of each village stabilized. There were a few more arrivals—generally people who applied for resettlement in 1980 but had not been allocated land immediately. There were very few departures. When a household head died during the study period, their farm typically passed to members of their family, either to their surviving wife or to one of their sons. Heirs inherited the right to farm the fields, to use common grazing lands, and to reside in the family homestead. We treat these cases as the survival of a dynastic household. In our data a household is regarded as having left when the family vacated land and homestead, either following the death of a household head or for some other reason. There are 504 households in the dataset with at most 499 appearing in the villages at any one time. Village size varies. The smallest village only has thirteen households throughout most of the time period covered by our data. The largest reached a maximum of 52 households in 1998.

The data we use for the analysis in this paper combines information on the same households from multiple sources. The socio-economic variables are drawn from the Zimbabwe Rural Household Dynamics Study (ZRHDS). The ZRHDS started in March 1983 and aimed to include all the households present in our study villages at that time.[11] From the first round of the ZRHDS we extract data on: livestock holdings upon arrival in the village; the age, sex, and education of the household head; the headcount size of each household upon arrival; and whether the household resided in a village placed under curfew by the UDI government during the war. We regard this last variable as a rough proxy for the intensity of fighting in the household's previous place of residence. In Zimbabwe, livestock is kept as a store of wealth and a productive asset and sometimes as part of a mixed farming system. We therefore use livestock holdings as an indicator of initial wealth. Livestock is measured in oxen-equivalent, with weights for different categories of animals constructed from 1995 market prices.

Subsequent survey rounds conducted between 1987–2000 revisited the households interviewed in 1983.[12] As a result, they do not include the late arrivals. These were identified and surveyed by us in 1999, in a single comprehensive survey round in which respondents were asked to recall the time of their arrival in the village and some of the characteristics of their households at that time.

Table 2 summarizes the characteristics and livestock holdings on arrival of the household heads residing in the study villages in 1980, 1982, and 1984.[13] The average livestock holdings at the time of resettlement were 3.2—equivalent to a pair of oxen, one milking cow, and a few chickens. 38% of households arrived with no livestock at all. They would have faced the prospect of clearing land and cultivating at least a first set of crops without a ploughing pair of their own.[14]

Table 2. *Livestock holdings and other characteristics of resettled households*

	Year	*n*	Mean or %	s.d.
Livestock holding at time of arrival		493	3.239	5.438
Female-headed households	1980	159	6.3%	
	1982	444	9.7%	
	1984	463	9.9%	
Age of household head	1980	157	37.732	12.051
	1982	436	41.823	12.998
	1984	455	43.998	13.053
Size of household (headcount)	1980	159	5.654	2.531
	1982	444	6.840	3.128
	1984	464	7.517	3.414
Non-Zimbabwean		502	6.8%	
Previously lived in a curfew village		468	36.5%	

Source: ZRHDS.

The age of the average household head in 1980 was 38 years. Later arrivals tended to be a little older. The average household size was between five and six members in 1980. Figures for subsequent years indicate either that late arrivals had larger households or that households expanded after resettlement through procreation or in-migration.

Data on CBOs were collected in 2000 during a six-week period of intensive fieldwork involving Barr and a small team of field researchers (see Barr, 2004).[15] The objective was to collect comprehensive data on civil social activity at the time and in the preceding two decades. Considerable thought went into designing a fieldwork protocol to maximize data quality. Using the Local Level Institutions Study (World Bank, 1998) as template, we designed a data-generating protocol with two main components.[16] The first component involved a village meeting attended by one adult member of every household in the village (a small number of households were unable to attend). During this meeting, a list was drawn of all the non-political groups that had ever existed in the village or to which village members had belonged. This list includes clubs, religious groups, unions, rotating savings and credit associations, and funeral societies.[17] One field researcher led the discussion among villagers while others wrote independent lists of the groups mentioned in the discussion. A master list was then assembled and presented to villagers at the meeting. It was further corroborated by researchers who engaged villagers in side conversations to collect any additional relevant information. From this process, we constructed an exhaustive list of groups that either existed at the time of the meeting or had existed at some time during the history of the village.

These lists became the code sheet for the next stage of data collection, which involved the recording of individual household's civil social histories. To ensure that the recall is as accurate as possible, we did not interview household representatives in isolation but instead constructed a panel of informants for each household. These panels usually include neighbors as well as household members. To reduce time pressure, panel interviews took place while refreshments were being served at the end of village meetings relating to other research tasks, or while menial tasks such as shelling groundnuts or beans were undertaken by groups of neighbors. This approach proved particularly valuable when the original settler had died, leaving behind family members too young to remember the early years of the household's history. This approach also allowed us to construct histories for the few households that no longer resided in the villages.

Generally, we find that women in their 40s and 50s were the most reliable panel members. Men recalled male activity with a high degree of accuracy, but provided inaccurate data on the current and past civil social activity of female household members. The existence of a "year zero", i.e., a point in time when the village was created *ad nihilo* and before which there was no civil society, provided an important anchor for the recall exercise. Natural dating techniques, principally involving references to drought years such as 1992 and 1995, were also used. As a result we have what we believe is a fairly complete year-by-year network of civil social activity in each village.

Protocol details notwithstanding, it is important to bear in mind that we were asking respondents to recall events during the preceding two decades—in some cases not just for themselves but also for absent others. The analysis presented below thus should be viewed as jointly testing the hypotheses outlined above and the accuracy of the data collection. In general we expect recall errors to introduce noise and reduce power. The only reason why recall errors may lead to spurious inference is if respondents fill gaps in their memory with guesses based on a shared theory. The likelihood of such occurrence appears slim, however. Recall error is far more likely to inflate standard errors and the estimates presented below should be regarded as conservative.

Table 11 provides a breakdown of all the CBOs in the dataset, by village and starting date. The majority of the CBOs, 70%, have members from the village only and less than a quarter of the reported CBOs have connections to external agents such as NGOs or government. Our analysis focuses on co-memberships in CBOs serving an economic purpose. These represent 41% of the CBOs listed in the fifteen villages. They include funeral societies, ROSCAs, and a diverse range of agricultural and other income-generating cooperatives aiming to maintain collectively owned indivisible structures and to harness economies of scale. They also include activities to learn and share new skills, most often relating to adult literacy or agricultural practices.[18]

CBOs serving a purely social purpose, such as choirs, dance groups, and football and netball clubs represent 15% of the listed CBOs. Tests indicate that recall data on these organizations are of considerably poorer quality, suggesting that membership is less important and thus harder to recall. To the extent that the data can be analyzed at all, social CBOs appear to follow a different formation process. It is therefore safer to omit them from the analysis.[19] We also exclude religious organizations, as religious affiliation is likely to predate resettlement.[20] Unfortunately, no information was collected on religious affiliation at the time of resettlement, so we cannot control for it. Religious groups represent 44% of the listed CBOs.

Each questionnaire used to collect CBO membership data started with the question "Has anyone from this household ever regularly attended the meetings of [*the name of a group or association*]?" This was followed by a series of questions about who attended, when the first attendee started attending, and when the last attendee stopped attending. Questions were also asked about attendance rates, contributions, and leadership. The precise identity of the attendees was not collected; we only know whether the attendees included the head of household, an adult male or female, or a male or female child. When several members attended, we do not know who was first and last. This protocol rules out studying individual connectedness.[21] To the extent that CBO membership and attendance decisions are taken jointly by the household, household interconnectedness is probably a better unit of analysis anyway. For the remainder of the paper m_{ij} denotes the number of economic CBOs in which households i and j have at least one member each. Similarly, d_{ij} is set to one when at least one member of household i and one member of household j belong to the same CBO.

The data on kinship were collected in 1999 and 2001. A specifically designed social mapping exercise was conducted using village focus groups involving at least one representative from each household residing in each village (Dekker, 2004). Information was obtained about the years of settlement, marriage, divorce, and death necessary to construct a panel of kinship ties. This information was then combined with marriage and household roster information from the panel survey and with a death registry collected separately in 2000 (see Barr & Stein, 2008). The help of experienced field researchers was enlisted in 2009 to complete missing information using natural dating techniques.

In the analysis, the relatedness of households i and j is defined as the maximum Hamilton's ratio between any member of household i and any member of household j. Hamilton's ratio is a measure of genetic relatedness. Marriage relations are captured as well. In accordance with local tradition, if the daughter of household i marries an adult male in household j, she moves into that household. Being related to her father and mother in household i, the Hamilton's ratio between the two households equals 0.5, which is its maximum possible value assuming no inbreeding. Although a full panel of kinship ties is available, here we only use initial relatedness, e.g., the kinship ties between two households in the year of settlement.[22] In the case of inter-marriage, the Hamilton's ratio between i and j equals 0.5 if the marriage took place before the two households had settled in the village.

The lineage data were collected in nine of the villages in 2001 and in the remaining six in 2009. Following consultations with experienced local field researchers, we chose to collect data on the totem of each household head and their spouse(s). In the study area, someone's totem is made of three elements: their Mutupo, Chidao, and Dzinza. These terms refer to the patrilineal clan, subclan, and subsection of the subclan, respectively. Both Mutupo and Chidao have religious and symbolic connotations. Someone's Dzinza simply traces their family roots and refers to the fourth male ancestor up the family tree (Bourdillon, 1976). It also indicates the geographical location of the clan lands upon which an individual's great-grand parents lived. In the analysis below, we use the Dzinza as a lineage variable. More specifically, household i is defined as having a shared lineage with household j if household i's head's or spouses' Dzinza matches household j's head's or spouses' Dzinza. This captures co-membership in a broad family network. Given the lack of close kinship ties in the resettled villages, this broad family network could provide a sense of shared identity and facilitate the provision of hospitality and support (Spierenburg, 2003; Stead, 1946). This exercise also revealed that almost 7% of the sampled households are of non-Zimbabwean origin.

For nine of the villages, we had geographical maps sketched in 1999 as part of the kinship mapping exercises. Originally, they were not intended to act as a source of geographical data. But, when we began work on this project in 2009, we returned to the maps as a source of geographical proximity data. We approximated the scale of each map using information about the size of the homestead plots officially assigned to each household. Having established that this exercise yielded useable data, we dispatched a small team of local researchers to draw similar sketch maps in the remaining six villages. They also measured a few key distances to verify the accuracy of our approximation of the scale of each map. In the analysis presented below, we use the estimated distance in km between each pair of households as a measure of the geographical distance between them.

The following regressors are used in the dyadic regression analysis:

Table 3. *Co-memberships in CBO's with an economic purpose (average number across dyadic sample, year-by-year)*

Year	For dyadic population in villages year-by-year			For sample of dyads in the regression analysis year-by-year		
	n	% with at least one co-mem.	Av. Number of co-mems	*n*	% with at least one co-mem.	Av. Number of co-mems
1980	4564	43.2	0.512			
1981	10,194	53.5	0.669			
1982	14,738	53.2	0.687	12,228	55.4	0.728
1983	15,706	57.7	0.958	13,138	58.7	0.986
1984	15,818	60.8	1.082	13,218	60.8	1.088
1985	16,242	62.3	1.132	13,606	62.3	1.140
1986	16,360	66.4	1.234	13,690	66.3	1.247
1987	16,666	68.8	1.319	13,972	68.9	1.328
1988	17,032	68.5	1.311	14,130	68.8	1.328
1989	17,194	67.9	1.324	14,280	68.2	1.342
1990	17,288	68.0	1.314	14,362	68.1	1.330
1991	17,300	69.2	1.323	14,464	69.2	1.338
1992	17,614	73.5	1.360	14,748	73.3	1.372
1993	17,614	74.7	1.371	14,748	74.6	1.382
1994	17,658	75.6	1.422	14,790	75.6	1.436
1995	17,758	77.2	1.502	14,790	77.0	1.509
1996	17,900	78.5	1.526	14,918	78.4	1.535
1997	17,928	79.8	1.553	14,946	79.8	1.560
1998	18,104	81.3	1.682	15,010	82.0	1.710
1999	18,002	82.3	1.826	15,010	82.5	1.848
2000	18,002	83.7	1.971	15,010	83.9	1.987

Source: CBO data.

- o The difference between household i's livestock holding at the time when it settled, and household j's livestock holding at the time when it settled.
- o The sum of livestock holdings at settlement.
- o A dummy equals to 1 if one household is female headed and the other is not, 0 otherwise.
- o The number of female-headed households.
- o The difference between the ages of the heads of households i and j at the time of settlement.[23]
- o The sum of the ages of the household heads.
- o A dummy equals to 1 if one household is non-Zimbabwean, the other not; 0 otherwise.
- o The number of non-Zimbabwean households.
- o A dummy equals to 1 if one household previously lived in a curfew village, the other not.
- o The number of households that previously lived in a curfew village.
- o The difference in settlement date (in years) between households i and j.
- o The sum of i and j's settlement dates, each measured in years since the start of the resettlement program, i.e., $1980 = 0$, $1981 = 1$, etc.
- o The difference in the size (head count) of households i and j at time of settlement.
- o The sum of the sizes of households i and j at the time of settlement.
- o The genetic relatedness between the two households, defined as the maximum Hamilton's ratio between all possible matched pairs of individuals from household i and j at time of settlement.
- o A dummy equals to 1 if the two households have a shared lineage or Dzinza.
- o The estimated distance in km between the homesteads of households i and j.

We realize that, in general, the building of new kinship ties through marriage may be an important predictor of co-membership in CBOs. In our data, there were no such ties across households at the time of resettlement. All marriage ties across study households occurred after resettlement and are potentially endogenous to the CBO formation process we study, e.g., people may marry someone they meet at CBO events. Hence conditioning on marriage ties across households could introduce reverse causation in the analysis. This is the reason why we do not include marriage ties in the analysis.

4. DESCRIPTIVE STATISTICS

Across the 15 villages in our dataset there are 127 different economic CBOs. In any given year, a CBO in existence in that year includes members from 13 to 15 households. Table 3 summarizes, year by year, the network of co-memberships defined by these 127 CBOs for the full sample of within-village household dyads, and for the regression sample for which we have complete data to estimate dyadic regressions. For these two samples the table reports sample size in each year, the percentage of dyads that share at least one CBO co-membership, and the average number of CBO co-memberships shared by a dyad.

We note a steady rise in CBO co-membership over time. In 1983, 58% of the household dyads shared at least one CBO co-membership. By 2000 that figure had risen to 84%. Over the same period the average number of co-memberships increased from just under one to just under two. There is no discernible difference between the full sample and the regression sample. These numbers are consistent with a high level of CBO activity and a high degree of interconnectedness. There is considerable variation across villages, however. Figure 1 plots, for each village separately, the evolution of the proportion of household dyads sharing at least one co-membership over time. We see that seven villages had a fully connected network of CBO co-membership by 1984, while five others had not even reached a density of 20% and one village had no CBO activity until 1991. We also note that the ranking of villages in terms of CBO co-memberships remains fairly stable over time. Figure 2 does the same thing for the average number of CBO co-memberships. This figure tells a similar story, with each village assuming a very similar rank to Figure 1.

We wish to identify household characteristics at the time of resettlement that predict CBO formation both within villages

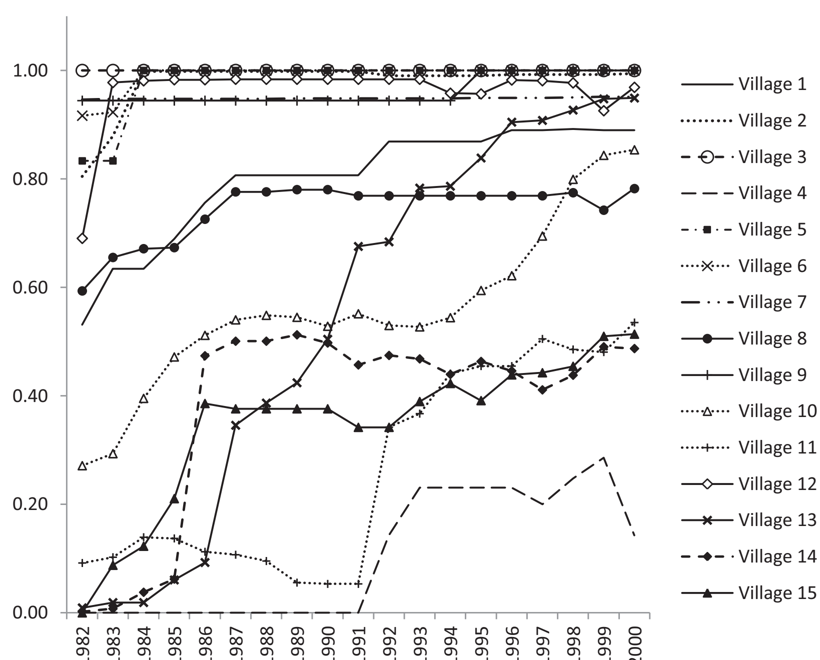


Figure 1. *The density of the economic CBO network over time, village-by-village.*

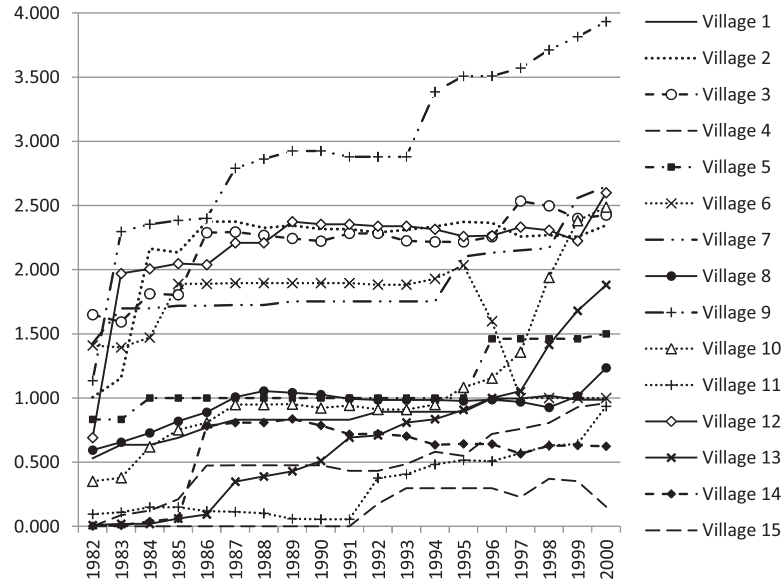


Figure 2. *The mean number of co-memberships in economic CBOs over time, village-by-village.*

and across villages. To study assorting into CBOs within villages, we need the process of discretionary allocation of settlers to villages (by government officials) to result in differences in household characteristics within villages. To identify predictors of differences in CBO membership across villages this process must also have produced sizeable differences in the means of household characteristics across villages.

The extent of within-village variation is presented in Table 4, which reports summary statistics for household dyads. Since dyads are only computed within villages, each of these statistics represents the average difference in a household characteristic across pairs of households residing in the same village. There are large differences between households in all the characteristics of interest. We also present the average genetic relatedness, the percentage of dyads having a shared lineage, and the mean geographical distance between homesteads. As anticipated, mean genetic relatedness is very low. Under our broad definition, 32% of the dyads have a shared lineage. Homesteads are a third of a kilometer apart on average. This distance is short but it is in line with the planned layout of resettlement villages in which all residential plots are clustered together. This pattern contrasts with the traditional layout of Zimbabwean villages where homesteads are scattered around the village territory and interspersed with arable fields.

The extent of across-village variation is summarized in Table 12, which reports village means for the key regressors of interest, as well as p-values of a Chi square test of equality of means across all 15 villages. We note sizeable and statistically significant variations in village means for all variables.

5. DYADIC REGRESSION RESULTS

We start by examining the evidence regarding assorting within villages. Table 5 presents estimated coefficients of a linear probability model where the dependent variable takes

Table 4. *Differences and sums of livestock holdings on arrival and other baseline characteristics of household dyads*

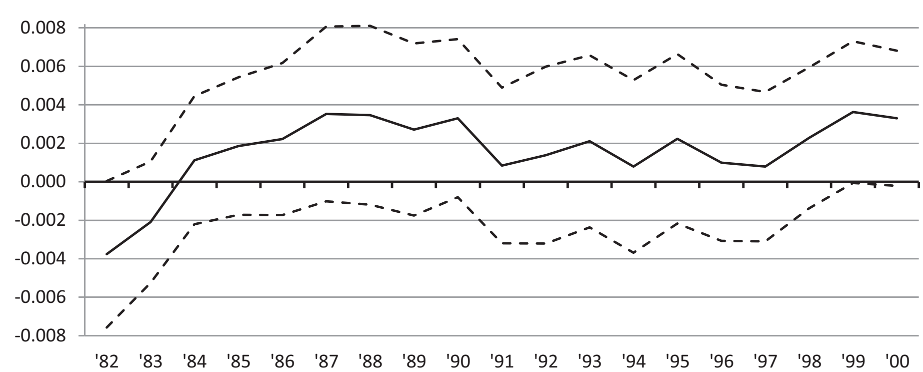
Variable	n	Mean or %	s.d.
Diff. in livestock holding on arrival	17,450	3.986	5.588
Diff. in age of household head	16,818	14.120	11.026
Diff. in size of household (head count, dyadic baseline)	17,388	3.407	2.863
Diff. in arrival time (1980 = 0)	18,258	1.677	3.210
One female-headed (dyadic baseline)	17,388	0.181	0.385
One non-Zimbabwean	18,160	0.101	0.302
One previously lived in a curfew village	15,712	0.232	0.422
Genetic relatedness (Hamilton's ratio)	18,258	0.012	0.066
Shared lineage	17,764	32.0%	
Geographical distance (km)	18,258	0.336	0.258
Sum of livestock holdings on arrival	17,450	6.346	6.904
Sum of ages of household heads (1982)	16,818	81.992	18.705
Sum of sizes of households (dyadic baseline)	17,388	12.962	4.599
Sum of arrival times (1980 = 0)	18,258	2.949	3.776
No. female-headed (dyadic baseline)	17,388	0.207	0.436
No. non-Zimbabwean	18,160	0.111	0.330
No. previously lived in a curfew village	15,712	0.687	0.819

Source: combined data.

Table 5. *The relationship between the network of economic CBO co-membership and livestock holdings on arrival, with controls, selected years only*

Dependent variable = 1 if dyad shares at least one co-membership in a CBO with an economic purpose, 0 otherwise	1982	1983	...1987	...1991	...1995	...1999	2000
Diff. livestock	−0.004	−0.002	0.004	0.001	0.002	0.004	0.003
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.002)	(0.002)
Sum livestock	0.004*	0.001	−0.003	0.001	−0.001	−0.002	−0.002
	(0.003)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Diff. fem head	0.014	0.005	0.008	0.021	0.031	0.029*	0.025*
	(0.021)	(0.017)	(0.021)	(0.023)	(0.026)	(0.016)	(0.015)
Sum fem head	−0.002	−0.017	−0.027	−0.030	−0.040	−0.019	−0.016
	(0.040)	(0.041)	(0.041)	(0.046)	(0.045)	(0.039)	(0.036)
Diff. age head	0.000	0.000	0.000	−0.001	0.000	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Sum age head	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Diff. hh size	−0.044	−0.023	−0.021	−0.035	−0.016	−0.016	−0.004
	(0.034)	(0.027)	(0.033)	(0.033)	(0.031)	(0.027)	(0.024)
Sum hh size	−0.029	−0.008	−0.005	−0.008	0.005	0.006	−0.005
	(0.024)	(0.020)	(0.022)	(0.021)	(0.016)	(0.022)	(0.014)
Diff. foreign	0.004	0.003	0.002	0.005	0.004	0.001	0.000
	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)	(0.004)	(0.004)
Sum foreign	0.001	0.002	0.002	0.003	0.003	0.004	0.003
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.004)	(0.004)
Diff. from curfew	−0.020	−0.017	0.000	−0.010	0.022	0.029**	0.030***
	(0.026)	(0.025)	(0.025)	(0.022)	(0.017)	(0.012)	(0.010)
Sum from curfew	0.021	0.022	0.027	0.015	0.014	0.009	0.008
	(0.029)	(0.027)	(0.025)	(0.024)	(0.023)	(0.019)	(0.017)
Diff. yrs settled	−0.021	−0.020	−0.029*	−0.027**	−0.028***	−0.010	−0.007
	(0.018)	(0.017)	(0.017)	(0.013)	(0.010)	(0.007)	(0.006)
Sum yrs settled	0.014	0.018	0.036**	0.018	0.011	0.007	0.002
	(0.020)	(0.017)	(0.016)	(0.012)	(0.010)	(0.008)	(0.007)
Relatedness	0.016	0.064	0.070	0.106*	0.004	−0.004	0.008
	(0.050)	(0.045)	(0.057)	(0.054)	(0.051)	(0.055)	(0.053)
Shared lineage	0.007	0.004	0.019	0.006	0.016	0.024	0.033
	(0.022)	(0.021)	(0.026)	(0.027)	(0.032)	(0.029)	(0.031)
Geog. distance	−0.055*	−0.047*	−0.019	0.006	−0.051	−0.078**	−0.097***
	(0.029)	(0.028)	(0.025)	(0.022)	(0.035)	(0.033)	(0.034)
Village f.e.s inc.	yes	yes	yes	yes	yes	yes	yes
Village f.e.s sig at	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
R-squared	0.6074	0.6500	0.4783	0.4917	0.2784	0.2433	0.2562
Observations	12,228	13,138	13,972	14,464	14,790	15,010	15,010

Notes: Coefficients and standard errors from linear probability models reported; standard errors (in brackets) adjusted to account for interdependence across dyads sharing a common element by clustering by dyads; estimations for all years can be found in the Appendix, Table 13; * – sig. at 10%; ** – sig. at 5%.
Source: combined data.

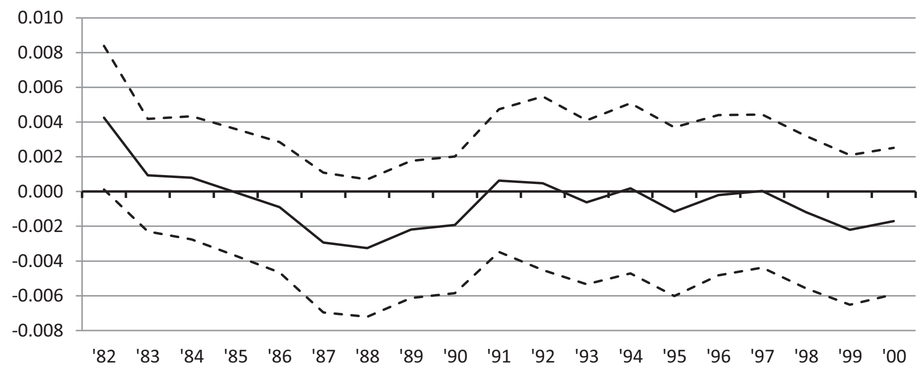


Notes: ___ estimated coefficient, year-by-year; - - - 90% confidence interval; see Tables 5 and 13 for regressions.

Figure 3. *Effect of the dyadic difference in livestock holding on arrival on the likelihood of having at least one co-membership in a CBO with an economic purpose.*

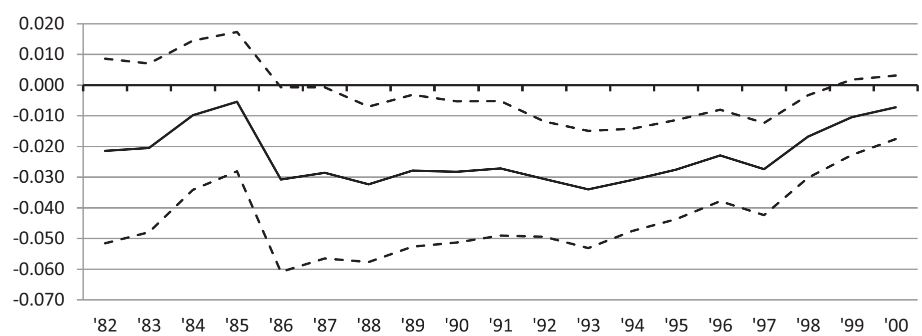
value 1 if the two households in a dyad share a least one co-membership in an economic CBO. Differences across villages are examined below. Dyadic robust standard errors are reported throughout. Because the focus of these regressions is exclusively on within-village assorting, we include village fixed effects in all regressions to net out differences in CBO network density across villages.

To save space, in Table 5 we present estimation results for selected years only—namely, the first two years and the last years of our panel, plus a few equally interspersed years in between. We include the first two years because it is important to clearly document the pattern of CBO co-membership at the time of resettlement. Since key information was collected in 1999 and 2000, we include the last two years to check for possible artefacts due to survey timing. The estimations for each panel year from 1982 to 2000 can be found in Appendix Table 13. Point estimates and 90% confidence intervals for the most interesting coefficients are presented in Figures 3–7.



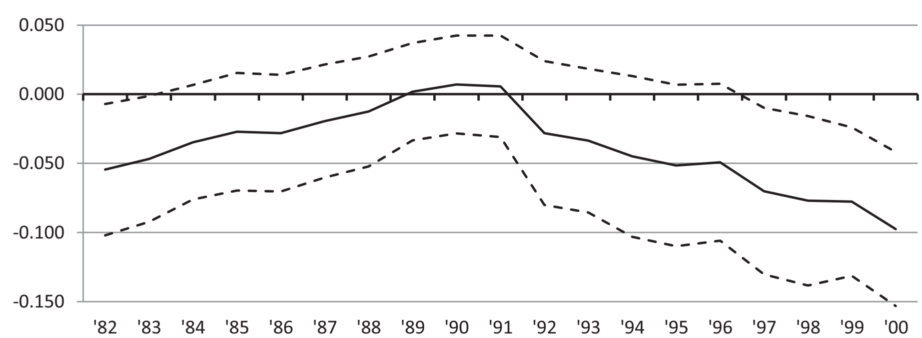
Notes:____ estimated coefficient, year- by -year; - - - 90% confidence interval; see Tables 5 and 13 for regressions.

Figure 4. *Effect of the dyadic sum of livestock holding on arrival on the likelihood of having at least one co-membership in a CBO with an economic purpose.*



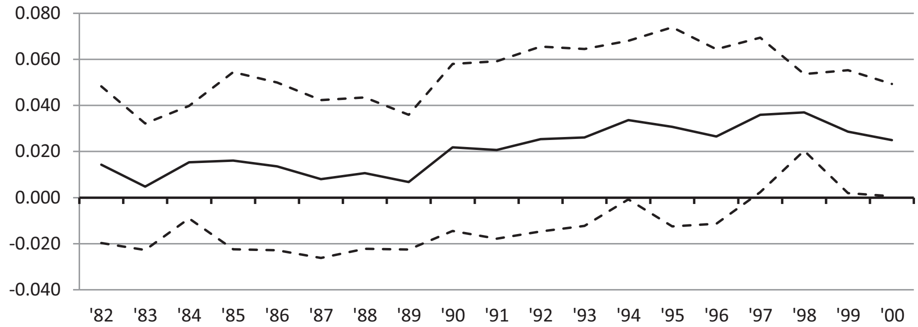
Notes:____ estimated coefficient, year- by -year; - - - 90% confidence interval; see Tables 5 and 13 for regressions.

Figure 5. *Effect of the dyadic difference in number of years in village on the likelihood of having at least one co-membership in a CBO with an economic purpose.*



Notes:____ estimated coefficient, year- by -year; - - - 90% confidence interval; see Tables 5 and 13 for regressions.

Figure 6. *Effect of the geographic distance between the households in a dyad on the likelihood of them having at least one co-membership in a CBO with an economic purpose.*



Notes:____ estimated coefficient, year- by -year; - - - 90% confidence interval; see Tables 5 and 13 for regressions.

Figure 7. *Effect of difference in sex of household head on the likelihood of them having at least one co-membership in a CBO with an economic purpose.*

Table 6. *The relationship between economic CBO co-memberships and livestock holdings on arrival, with controls, selected years*

Dependent variable = number of co-memberships in economic CBOs that dyad shares							
	1982	1983	1987	1991	1995	1999	2000
Diff. livestock	−0.002	0.001	0.007	0.002	0.007	0.007	0.005
	(0.004)	(0.005)	(0.007)	(0.007)	(0.007)	(0.012)	(0.013)
Sum livestock	0.004	−0.003	−0.005	0.002	−0.005	−0.002	0.003
	(0.004)	(0.005)	(0.008)	(0.008)	(0.008)	(0.013)	(0.014)
Diff. fem head	0.055**	0.045**	0.073**	0.067*	0.113***	0.071	0.110
	(0.024)	(0.018)	(0.033)	(0.038)	(0.041)	(0.066)	(0.068)
Sum fem head	−0.017	−0.025	−0.084	−0.098	−0.140	−0.022	−0.032
	(0.042)	(0.043)	(0.073)	(0.074)	(0.074)	(0.136)	(0.143)
Diff. age head	0.000	0.000	−0.002	−0.001	−0.003	0.000	0.000
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Sum age head	0.001	0.001	0.001	0.000	0.001	0.001	0.001
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Diff. hh size	0.003	0.000	0.001	0.002	0.001	−0.007	−0.007
	(0.006)	(0.008)	(0.010)	(0.009)	(0.010)	(0.012)	(0.013)
Sum hh size	0.002	0.006	0.011	0.012	0.012	0.022	0.018
	(0.006)	(0.008)	(0.010)	(0.010)	(0.010)	(0.015)	(0.015)
Diff. foreign	−0.082	−0.042	−0.104	−0.202*	−0.146	−0.106	−0.048
	(0.050)	(0.077)	(0.108)	(0.103)	(0.097)	(0.120)	(0.126)
Sum foreign	0.038	0.058	0.087	0.156	0.107	−0.031	−0.029
	(0.073)	(0.092)	(0.122)	(0.104)	(0.091)	(0.086)	(0.089)
Diff. from curfew	−0.006	−0.043	−0.017	−0.022	0.049	−0.004	−0.050
	(0.038)	(0.060)	(0.073)	(0.067)	(0.060)	(0.088)	(0.103)
Sum from curfew	−0.011	0.022	−0.014	−0.028	−0.093	−0.083	−0.033
	(0.048)	(0.059)	(0.074)	(0.070)	(0.081)	(0.094)	(0.104)
Diff. yrs settled	−0.038	−0.044	−0.073**	−0.060**	−0.049**	−0.026	−0.024
	(0.026)	(0.031)	(0.032)	(0.026)	(0.020)	(0.023)	(0.025)
Sum yrs settled	0.047	0.047	0.055	0.023	0.016	0.026	0.023
	(0.032)	(0.038)	(0.032)	(0.025)	(0.021)	(0.029)	(0.032)
Relatedness	0.011	0.168	0.180	0.188	0.293	0.279	0.217
	(0.099)	(0.168)	(0.186)	(0.176)	(0.239)	(0.292)	(0.292)
Shared lineage	0.003	−0.013	0.039	0.021	0.012	−0.007	0.023
	(0.036)	(0.042)	(0.075)	(0.073)	(0.080)	(0.116)	(0.126)
Geog. distance	−0.092	−0.120	−0.082	−0.067	−0.193	−0.132	−0.225
	(0.062)	(0.084)	(0.098)	(0.102)	(0.127)	(0.144)	(0.150)
Village f.e.s inc.	yes	yes	yes	yes	yes	yes	yes
Village f.e.s sig at	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
R-squared	0.5744	0.6102	0.4789	0.4944	0.4496	0.3647	0.3272
Observations	12,228	13,138	13,972	14,464	14,790	15,010	15,010

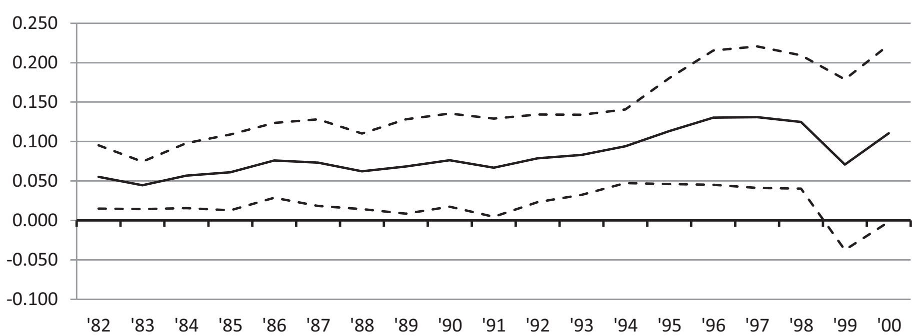
Notes: Coefficients and standard errors from linear regressions reported; standard errors (in brackets) adjusted to account for interdependence across dyads sharing a common element by clustering by dyads; * – sig. at 10%; ** – sig. at 5%; *** – sig. at 1%.
Source: combined data.

Table 6 presents similar regression results, for the same subset of years, using the *number* of co-memberships as the dependent variable. The full set of regression results can be found in Appendix Table 14. Year-by-year point estimates and 90% confidence intervals for two of the regressors are presented in Figures 8 and 9.

With respect to livestock holdings at resettlement, Table 5 and Figure 3 show that households with different livestock wealth at the time of resettlement were as likely as households with similar livestock wealth to be co-members in CBOs. Table 5 and Figure 4 show that, in 1982, households with more livestock were more likely to belong to a CBO than their poorer neighbors. However, by 1983 this effect had disappeared and, from then on, the coefficient on the sum of initial livestock holdings remains close to 0 and statistically non-significant. Further, this effect is not observed in Table 6, in which the number of co-memberships is the dependent variable. Taken together, these findings contradict the hypothesis that CBO formation in resettled villages was elitist. The narrative that seems to best fit the fact is that better off resettled households set up some economic CBOs upon arrival and that poorer households joined these CBOs shortly thereafter. Why it is richer households that set up the first village CBOs is not entirely clear, but one possibility is that poorer settlers, having just survived the war, had to focus on survival and were not in a position to set up anything. Once established in their new village, however, they were rapidly allowed to join existing CBOs as and when their circumstances allowed, so that, over time, initial wealth has no predictive power on CBO membership. We would not have expected to find this pattern if club membership had served, through segregation and prejudice, to freeze the socio-economic differentiation present at the time of resettlement.

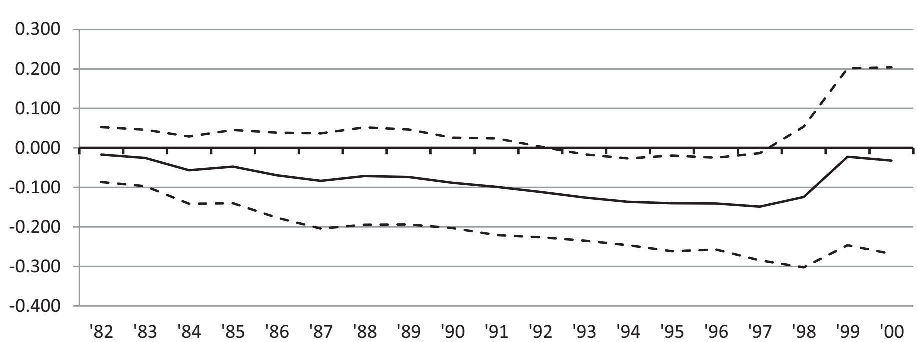
Table 5 and Figure 5 show that, from 1986 to 1998, households are more likely to belong to the same CBO if they settled at around the same time. This effect is observed only seven years after the resettlement program started, suggesting that it is driven by the few households who resettled very late. As time passes, the effect remains and is estimated with increasing precision, but it declines in magnitude and loses its statistical significance in 1999 and 2000. The same story is told in Table 6, where the number of co-memberships is the dependent variable. Tables 5 and 6 also show that, around 1987 (the effect is also observed in 1986 and 1988), late settlers were more likely than early settlers to be CBO members. Taken together, these findings suggest that late settlers either responded to being excluded from pre-existing CBOs by setting up their own but this, almost competitive, response was short lived; or never wished to belong to early settler CBOs and set up their own CBOs with initially considerable—but waning—enthusiasm.

Table 5 and Figure 6 show that, in 1982 and 1983, more geographically proximate households were more likely to share at least one co-membership. This effect, however, vanished over time, a finding in accordance with Gans (1968) and Michaelson (1976). However, the effect reappears in 1997



Notes:___ estimated coefficient, year- by -year; - - - 90% confidence interval; see Tables 6 and 14 for regressions.

Figure 8. *Effect of difference in sex of household head on the number of co-memberships in CBOs with an economic purpose that a household dyad shares.*



Notes:___ estimated coefficient, year- by -year; - - - 90% confidence interval; see Tables 6 and 14 for regressions.

Figure 9. *Effect of both household heads being female on the number of co-memberships in CBOs with an economic purpose that a household dyad shares.*

and grows stronger during 1997–2000. Could this be due to the increased political polarization that was growing during that period? We cannot tell.

One of the most heartening effects identified by our analysis relates to the gender of the household heads. Table 6 and Figure 8 show that households with heads of different gender on average share more rather than fewer co-memberships. This effect persists even when, from 1992–97, female-headed households, on average, appear to be less well connected via the CBO network (see Figure 9). While the corresponding coefficient in Table 5 and Figure 7 is always positive, it is rarely significant. We do not know why female-headed households were treated favorably in the study area. One possible conjecture is that the intervention of the government and the link between the resettlement program and the war (and thus widowhood) created an atmosphere more welcoming toward female-headed households.

Pooling data across years increases power and can, thereby, improve inference. To this effect, we re-estimate the model presented year-by-year in Table 5 using all 19 years of data in a single regression that also includes year dummies to capture the effect of the passage of time. However, inferences based on this regression are valid only if the coefficients on the regressors are stable across time. To investigate this, we interact each of the year dummies with each of the other regressors in the model. These interaction terms are jointly highly significant ($p < 0.001$) indicating that pooling is not appropriate.[24] We conduct a similar analysis and reach a similar conclusion for the model presented year-by-year in Table 6. Based on these analyses, we conclude that inference is best conducted using the year-by-year results reported above.

6. VILLAGE-LEVEL ANALYSIS

Having discussed assorting patterns within villages, we now turn to the large and significant differences in CBO network density across villages. For both Tables 5 and 6, village fixed effects are always jointly significant and explain a large proportion of the variation in the dependent variables. In 1983, village fixed effects account for as much as 63 (Table 5) and 60% (Table 6) of the variation in CBO co-membership. The proportion falls to 24% and 32%, respectively, in 2000. Since we only have data for 15 villages observed over a 19-year period, we are modest in our ambition of identifying statistically significant predictors of inter-village differences in CBO network density.

We focus on two village-level dependent variables: the village average of d_{ij}, and the village average of m_{ij}. The first is the density of the village CBO network, i.e., the proportion of household dyads that have at least one CBO membership in common; the second is the average number of CBO co-memberships between pairs of households.[25] Each dependent variable is defined for each of the years between 1982–2000.

Before proceeding with the analysis, it is useful to go back over the hypotheses that would be consistent with particular village-level correlation patterns. First, if wealth varies markedly across villages and wealthier households are more likely to join CBOs, we expect a positive correlation between the average wealth of a village and CBO co-membership. Alternatively, if poorer households benefit more from CBOs, we expect a negative relationship. Second, if shared lineage provides an alternative foundation for collective action, allowing villagers to dispense from forming CBOs, we expect to find a

Table 7. *Village characteristics*

		Mean	s.d.	Minimum	Maximum
Mean livestock on arrival		3.31	1.41	1.57	6.94
Density of lineage network		0.07	0.07	0.00	0.18
Proportion of households female-headed		0.09	0.08	0.00	0.24
Mean household head's age 1982		42.33	3.59	37.37	49.59
Mean household head's age 1984		44.59	3.78	39.37	52.43
Mean household head's education 1982		5.31	0.98	3.43	7.26
Mean household head's education 1984		5.23	0.95	3.43	7.10
Mean household size 1982		7.03	0.95	5.38	9.21
Mean household size 1984		7.72	1.02	5.86	9.79
Proportion non-Zimbabwean		0.09	0.08	0.00	0.27
Proportion previously in curfew villages		0.40	0.33	0.00	0.85
Mean genetic relatedness		0.01	0.01	0.00	0.03
Village in southerly cluster		40%			
Number of economic CBOs in village	1982	2.13	1.64	0.00	5.00
	1983	3.13	2.47	0.00	9.00
	1987	5.27	3.97	0.00	16.00
	1991	5.40	4.31	0.00	18.00
	1995	6.27	4.38	1.00	19.00
	1999	7.47	5.10	1.00	22.00
	2000	7.67	5.16	1.00	22.00
Number of households in village	1982	30.07	10.79	12.00	49.00
	1983	31.20	10.60	12.00	50.00
	1987	32.13	10.89	13.00	50.00
	1991	32.67	11.29	13.00	50.00
	1995	33.07	11.50	13.00	51.00
	1999	33.33	11.45	13.00	51.00
	2000	33.33	11.45	13.00	51.00
Observations		15			

Reported means (standard deviations) are the mean of village averages (standard deviations).
Source: combined data.

Table 8. *Village-level pairwise correlations with density of the economic CBO membership network*

	1982	1983	1984	1985	1986	1987	1988
Mean livestock on arrival	−0.80***	−0.76***	−0.78***	−0.76***	−0.68***	−0.71***	−0.71***
Density of lineage network	−0.70***	−0.66***	−0.65***	−0.63**	−0.52**	−0.49*	−0.48*
Proportion of households female-headed	−0.44	−0.43	−0.41	−0.39	−0.30	−0.20	−0.18
Mean household head's age '82/4#	−0.47*	−0.47*	−0.46*	−0.46*	−0.30	−0.30	−0.30
Mean household head's education '82/4#	−0.12	−0.08	−0.03	−0.03	−0.04	−0.05	−0.05
Mean household size '82/4#	0.22	0.18	0.08	0.07	0.04	0.05	0.06
Proportion of non-Zimbabwean	0.21	0.13	0.14	0.13	0.08	0.02	0.01
Proportion previously in curfew villages	0.59	0.52	0.50	0.48	0.41	0.39	0.39
Mean genetic relatedness	0.17	0.15	0.10	0.08	0.01	0.00	0.00
Southerly cluster	−0.69***	−0.62**	−0.62**	−0.60**	−0.53**	−0.51*	−0.50*
Number of economic CBOs in village##	0.41	0.21	0.10	0.11	0.14	0.15	0.14
Number of households in village##	0.09	0.12	0.08	0.07	0.05	0.05	0.03

	1989	1990	1991	1992	1993	1994	1995
Mean livestock on arrival	−0.69***	−0.69***	−0.70***	−0.80***	−0.78***	−0.79***	−0.80***
Density of lineage network	−0.47*	−0.46*	−0.43	−0.49*	−0.50*	−0.50*	−0.46*
Proportion of households female headed	−0.16	−0.15	−0.09	−0.16	−0.16	−0.18	−0.14
Mean household head's age '82/4#	−0.28	−0.28	−0.30	−0.39	−0.39	−0.44	−0.46*
Mean household head's education '82/4#	−0.06	−0.06	−0.05	0.00	−0.02	0.02	0.05
Mean household size '82/4#	0.08	0.09	0.10	0.07	0.11	0.07	0.06
Proportion non-Zimbabwean	0.01	−0.01	−0.04	−0.04	−0.02	−0.04	−0.07
Proportion previously in curfew villages	0.38	0.38	0.35	0.39	0.39	0.38	0.37
Mean genetic relatedness	0.01	0.01	0.02	0.02	0.04	0.00	0.01
Southerly cluster	−0.50*	−0.49*	−0.46*	−0.49*	−0.50*	−0.49*	−0.46*
Number of economic CBOs in village##	0.14	0.10	0.10	−0.03	−0.14	−0.12	−0.07
Number of households in village##	0.01	0.00	0.02	0.06	0.03	0.04	0.08

	1996	1997	1998	1999	2000
Mean livestock on arrival	−0.77***	−0.78***	−0.77***	−0.75***	−0.75***
Density of lineage network	−0.42	−0.39	−0.36	−0.32	−0.23
Proportion of households female-headed	−0.11	−0.08	−0.03	−0.02	0.04
Mean household head's age '82/4#	−0.46*	−0.52**	−0.51*	−0.49*	−0.54**
Mean household head's education '82/4#	0.06	0.12	0.11	0.11	0.22
Mean household size '82/4#	0.05	−0.01	0.00	0.00	−0.13
Proportion non-Zimbabwean	−0.10	−0.15	−0.15	−0.14	−0.25
Proportion previously in curfew villages	0.33	0.29	0.28	0.26	0.17
Mean genetic relatedness	0.00	−0.05	−0.04	−0.06	−0.16
Southerly cluster	−0.42	−0.38	−0.37	−0.35	−0.25
Number of economic CBOs in village##	−0.05	0.01	0.01	0.04	0.13
Number of households in village##	0.09	0.14	0.15	0.16	0.24

Notes: $n = 15$ in every case; * – sig. at 10%; ** – sig. at 5%; *** – sig. at 1%.
Source: village-level data.
1982 mean used in correlations with density of the network in 1982 and 1983, 1884 used in correlations with density of the network in 1984 to 2000.
The number used in each correlation relates to the same year as the density of the network.

negative correlation between CBO membership and the density of lineage networks in each village.

We start by calculating bivariate correlation coefficients between our two dependent variables and the village means of various household characteristics. We consider the large list of possible correlates, summarized in Table 7. The Table presents the mean and standard deviation of village averages in livestock holdings at the time of arrival, and in the density of lineage networks. It also reports the mean and standard deviation of village means for: the age of household heads; the years of education of the household heads; the household size; the proportion of non-Zimbabwean households; the proportion of households who resided in a curfew village during the war; the genetic relatedness in each village; the number of economic CBOs; the number of households; and a dummy variable indicating whether the village is located in the southerly cluster rather than in the northerly cluster. The last variable proxies for regional differences in land quality, in the lineage and region of origin of settlers, and in the implementation of the resettlement policy and related government programs. The land around the northern villages is better suited for cash-crop cultivation, while the land around the southern villages is better suited for small cereals and for mixed farming.

We report simple bivariate correlations for d_{ij} and m_{ij} in Tables 8 and 9, respectively. From Table 8 we note that, for all panel years, the proportion of household dyads sharing a CBO co-membership is negatively correlated with the mean livestock holdings on arrival. The correlation is highly significant and the remarkable strength of the correlation is also evident in year-by-year scatter plots—see Figures 10 and 11 for 1982 and 2000, respectively. In the years immediately following resettlement, CBO co-membership is negatively correlated with the density of the lineage network. This relationship is highly significant, but its strength declines over time and is no longer significant from 1996 onward. We also observe significantly less CBO co-membership in the southerly cluster, but only until 1996. CBO co-membership is also negatively correlated with the average age of household heads, but only at the beginning and the end of the study period.

For the average number of CBO co-memberships Table 9 shows similar but, generally, weaker correlations. In all years the number CBO co-memberships is negatively correlated with mean livestock holdings at resettlement, but in later years the correlation is only significant at the 10% level. The negative correlation with the density of the lineage network ceases to be significant after 1989, and the negative correlation with the southerly cluster dummy becomes non-significant after 1987. The negative correlation with the mean age of the household heads is absent in the early years but stronger in the later years.

The negative correlation with the density of the lineage network is consistent with the hypothesis that, in these villages at least, shared lineage and CBO activity are substitutes for collective action. This accords with reported responsibility toward clan members and is in line with the earlier findings of Barr (2004). The negative correlation with mean livestock holdings is consistent with the hypothesis that poorer villages engage in more CBO activity because it is of greater value to them.

To investigate the robustness of the negative correlation between the CBO co-membership and mean livestock holdings, we estimate a series of simple OLS regressions that take the proportion of dyads sharing at least one CBO membership as dependent variable and include as regressors the mean livestock holdings at resettlement, the mean age of household head, the density of the lineage network, and the southerly cluster dummy. These regressors are included because they were shown to be correlated with inter-village variation in CBO density. One regression is run for each year and the results are reported in Table 10.[26] The coefficient on average livestock holdings is significant in every regression; the other

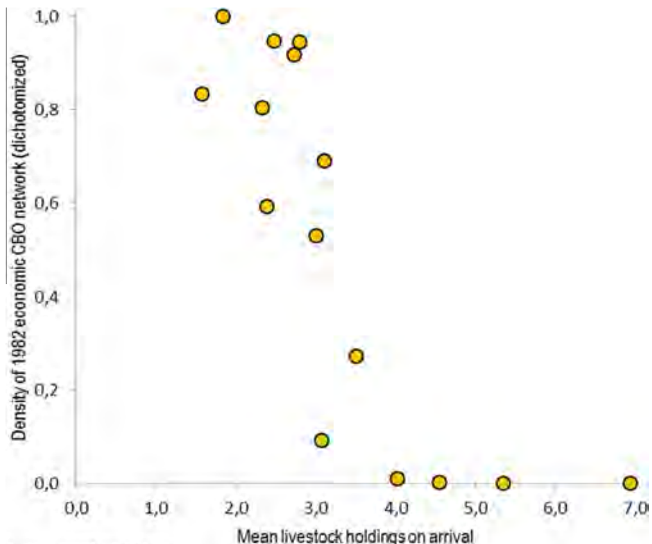
Table 9. *Village-level pairwise correlations with mean numbers of co-memberships in economic CBOs*

	1982	1983	1984	1985	1986	1987	1988
Mean livestock on arrival	−0.72**	−0.59**	−0.63**	−0.62**	−0.57**	−0.56**	−0.56**
Density of lineage network	−0.66***	−0.52**	−0.52**	−0.52**	−0.45*	−0.42	−0.42*
Proportion of households female-headed	−0.42	−0.44	−0.47*	−0.44	−0.38	−0.33	−0.32
Mean household head's age '82/4[#]	−0.37	−0.47*	−0.50*	−0.45*	−0.33	−0.37	−0.37
Mean household head's education '82/4[#]	−0.08	0.12	0.16	0.15	0.15	0.18	0.18
Mean household size '82/4[#]	0.27	0.09	0.01	−0.02	0.03	0.00	0.00
Proportion non-Zimbabwean	0.32	0.05	0.07	0.08	0.11	0.03	0.02
Proportion previously in curfew villages	0.54**	0.44	0.43	0.43	0.35	0.35	0.35
Mean genetic relatedness	0.16	0.32	0.18	0.17	0.08	0.10	0.11
Southerly cluster	−0.67**	−0.46*	−0.49*	−0.49*	−0.44*	−0.41	−0.41
Number of economic CBOs in village[##]	0.48	0.41	0.24	0.24	0.28	0.31	0.28
Number of households in village[##]	0.10	0.25	0.23	0.22	0.18	0.20	0.18

	1989	1990	1991	1992	1993	1994	1995
Mean livestock on arrival	−0.55**	−0.55**	−0.56**	−0.57**	−0.56**	−0.52**	−0.53**
Density of lineage network	−0.40	−0.40	−0.39	−0.41	−0.42	−0.40	−0.39
Proportion of households female-headed	−0.32	−0.32	−0.30	−0.34	−0.35	−0.37	−0.36
Mean household head's age '82/4[#]	−0.37	−0.37	−0.38	−0.42	−0.42	−0.46*	−0.47*
Mean household head's education '82/4[#]	0.19	0.19	0.20	0.23	0.22	0.24	0.24
Mean household size '82/4[#]	−0.01	−0.01	0.01	−0.01	0.00	−0.03	−0.04
Proportion non-Zimbabwean	0.00	0.00	0.00	0.01	0.01	−0.01	−0.02
Proportion previously in curfew villages	0.33	0.34	0.33	0.34	0.34	0.36	0.39
Mean genetic relatedness	0.12	0.13	0.13	0.14	0.16	0.17	0.21
Southerly cluster	−0.39	−0.39	−0.38	−0.39	−0.39	−0.38	−0.39
Number of economic CBOs in village[##]	0.29	0.24	0.24	0.17	0.10	0.13	0.14
Number of households in villag	0.17	0.16	0.17	0.18	0.17		22

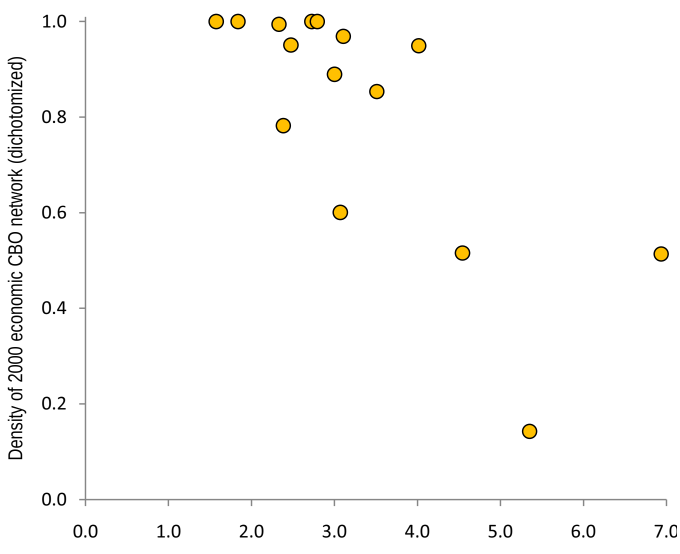
	1996	1997	1998	1999	2000
Mean livestock on arrival	−0.55**	−0.53**	−0.48*	−0.44*	−0.46*
Density of lineage network	−0.38	−0.31	−0.20	−0.12	−0.06
Proportion of households female-headed	−0.39	−0.34	−0.25	−0.18	−0.14
Mean household head's age '82/4[#]	−0.54**	−0.62**	−0.64**	−0.65***	−0.70***
Mean household head's education '82/4[#]	0.23	0.31	0.35	0.37	0.47*
Mean household size '82/4[#]	−0.01	0.00	−0.03	−0.08	−0.18
Proportion non-Zimbabwean	−0.04	−0.10	−0.15	−0.21	−0.31
Proportion previously in curfew villages	0.38	0.30	0.23	0.21	0.13
Mean genetic relatedness	0.20	0.16	0.16	0.18	0.12
Southerly cluster	−0.39	−0.31	−0.23	−0.17	−0.10
Number of economic CBOs in village[##]	0.10	0.19	0.27	0.36	0.41
Number of households in village[##]	0.18	0.23	0.30	0.39	0.46

Notes: $n = 15$ in every case; * – sig. at 10%; ** – sig. at 5%; *** – sig. at 1%.
Source: village-level data.
[#] 1982 mean used in correlations with mean numbers of co-memberships in 1982 and 1983, 1884 used in correlations with mean numbers of co-memberships in 1984 to 2000.
[##] The number used in each correlation relates to the same year as the mean numbers of co-memberships.



Source: combined data

Figure 10. *Village-level relationship between mean livestock wealth on arrival and the density of the economic CBO network (dichotomized) in 1982.*



Source: combined data

Figure 11. *Village-level relationship between mean livestock wealth on arrival and the density of the economic CBO network (dichotomized) in 2000.*

coefficients are never significant. We take this as strong evidence of a systematic negative relationship between CBO formation and average village wealth at the time of resettlement.

7. FURTHER EXPLORATION INTO THE EFFECTS OF WEALTH ON CBO FORMATION

The dyadic analysis in Table 5 revealed that, in 1982, wealthier households within each village engaged in more CBO activity, while the poor appeared to be excluded. By 1983 this effect had disappeared, a finding we interpreted as suggesting that, when they were ready to join, the poor were free to join without prejudice. In contrast, the village-level analysis in Table 10 reveals that, from 1982 to 2000, poorer villages engaged in more CBO activity, a finding that is consistent with CBOs being of greater value to the poor.

In a bid to reconcile these two apparently conflicting findings, we divide the dyadic sample into two sub-samples, one for the eight poorest villages and one for the richest seven, and we re-estimate the dyadic regressions on the two sub-samples separately (results not reported). This reveals that poorer villages drive the significant positive coefficient for the sum of livestock holdings. For these villages, a significant coefficient is observed in 1982 and 1983, indicating it was the relatively well off households in the poorest villages that were the most active in setting up the CBOs. Maybe they realized that, as the richest inhabitants in these poor villages, they would be expected to provide support to others in times of need. Perhaps they saw setting up CBOs as a way of helping their new neighbors help themselves—also reducing their own future burden in the process.

8. DISCUSSION AND CONCLUSIONS

Recent years have witnessed a renewed policy interest in community-based development and CBOs. The extent to which CBOs can contribute to effective and equitable development strongly depends on where they do and do not emerge and on their socio-economic composition. Given the cross-sectional nature of most work in this field, recent studies have provided descriptive information on CBO composition. But they have been unable to satisfactorily address issues of causality, i.e. whether similarity causes people to associate with one another, or whether CBO co-membership causes people to become more similar—and thus whether community composition affects CBO formation.

In this paper, we present unique data on the CBO history of newly formed settlements, the networks of kinship and lineage ties between villagers, and the characteristics of households at the time of resettlement. We use these data to investigate who groups with whom in economic CBOs, knowing that emerging CBOs could not have had any effect on the initial characteristics of their members, given that villagers had limited prior knowledge of one another.

In the Zimbabwean villages we study, we do not find evidence that CBOs are elitist. True, we do find that households that were wealthier at resettlement were more actively involved in setting up CBOs, possibly because they had the time and means to do so. But poorer households joined in when their circumstances allowed, a few years after resettlement.

In the first few years after resettlement, geographical proximity was a determinant of CBO co-membership. The effect then declined, only to re-emerge in the late 1990s. Although female-headed households are less likely to belong to a CBO for some of the study years, they are not excluded (or choose not to exclude themselves) from associating with male-headed households. If anything, on average they are more likely to share memberships with them. People who resettled later tend not to join existing CBOs and instead appear to set up new CBOs with other late settlers. Whether this pattern arises because they are excluded or exclude themselves is unclear.

In the dyadic regressions we find significantly strong correlation between the village of residence and the likelihood of CBO co-membership, indicating that villages differ considerably in terms of CBO creation. In a village-level analysis, we find that average CBO co-membership is negatively related

Table 10. *Village-level regression analyses of the density of the economic CBO membership network*

	1982	1983	1984	1985	1986	1987	1988
Mean livestock on arrival	−0.141*	−0.141	−0.165*	−0.154*	−0.167*	−0.177*	−0.178**
	(0.067)	(0.078)	(0.080)	(0.082)	(0.087)	(0.080)	(0.079)
Density of lineage network	−1.341	−3.051	−2.803	−2.355	−1.975	0.599	0.738
	(2.798)	(3.233)	(3.295)	(3.375)	(3.598)	(3.284)	(3.279)
Mean household head's age '82/4#	−0.014	−0.015	−0.010	−0.010	0.010	0.013	0.013
	(0.022)	(0.026)	(0.025)	(0.026)	(0.027)	(0.025)	(0.025)
Southerly cluster	−0.163	0.097	0.089	0.049	0.127	−0.174	−0.184
	(0.378)	(0.437)	(0.445)	(0.455)	(0.485)	(0.443)	(0.443)
Constant	1.724*	1.838*	1.693*	1.709	0.816	0.731	0.712
	(0.855)	(0.987)	(1.013)	(1.038)	(1.106)	(1.009)	(1.008)
R-squared	0.752	0.681	0.689	0.689	0.513	0.541	0.538
Observations	15	15	15	15	15	15	15
	1989	1990	1991	1992	1993	1994	1995
Mean livestock on arrival	−0.181*	−0.180*	−0.187**	−0.168**	−0.150**	−0.140**	−0.146**
	(0.081)	(0.081)	(0.081)	(0.059)	(0.057)	(0.053)	(0.053)
Density of lineage network	0.962	1.005	1.220	−0.073	−0.310	−0.377	−0.761
	(3.346)	(3.332)	(3.318)	(2.400)	(2.326)	(2.185)	(1.420)
Mean household head's age '82/4#	0.153	0.015	0.014	0.008	0.007	0.002	0.001
	(0.026)	(0.026)	(0.026)	(0.019)	(0.018)	(0.017)	(0.017)
Southerly cluster	−0.212	−0.210	−0.206	−0.032	−0.011	0.001	−0.032
	(0.451)	(0.450)	(0.448)	(0.324)	(0.314)	(0.295)	(0.292)
Constant	0.626	0.636	0.695	0.971	0.987	1.173	1.229*
	(1.028)	(1.024)	(1.020)	(0.738)	(0.715)	(0.672)	(0.665)
R-squared	0.526	0.524	0.525	0.648	0.620	0.638	0.648
Observations	15	15	15	15	15	15	15
	1996	1997	1998	1999	2000		
Mean livestock on arrival	−0.138**	−0.139**	−0.136**	−0.126**	−0.145**		
	(0.057)	(0.055)	(0.054)	(0.052)	(0.054)		
Density of lineage network	0.027	0.127	0.550	1.109	1.287		
	(2.321)	(2.257)	(2.197)	(2.119)	(2.221)		
Mean household head's age '82/4#	−0.001	−0.006	−0.005	−0.004	−0.007		
	(0.018)	(0.018)	(0.017)	(0.016)	(0.172)		
Southerly cluster	−0.016	−0.003	−0.046	−0.110	−0.070		
	(0.313)	(0.304)	(0.296)	(0.286)	(0.300)		
Constant	1.299*	1.498*	1.444*	1.350*	1.519*		
	(0.714)	(0.694)	(0.675)	(0.651)	(0.683)		
R-squared	0.593	0.619	0.608	0.576	0.610		
Observations	15	15	15	15	15		

Notes: Coefficients and standard errors from OLS regressions (one of each year) presented; * – sig. at 10%; ** – sig. at 5%; *** – sig. at 1%.
Source: village-level data.
1982 mean used in correlations with density of the network in 1982 and 1983, 1884 used in correlations with density of the network in 1984 to 2000.

to the mean livestock holdings on arrival and that this effect persists throughout the two decades for which we have data. This indicates that villages comprising more poor settlers are more active in creating CBOs.

With the exception of a positive effect of geographical proximity, we fail to replicate any of Arcand and Fafchamps' (2012) findings. We find no effect of shared lineage on who groups with whom, and only weak evidence that the density of the lineage network affects CBO formation at the village level. Studying lineage effects is as close as we can get to a concept of ethnicity within our data. This is because the very large majority of the households in our sample are Shona.

The greatest strength of our analysis is that it is based on data derived from a quasi-experiment. This being the case, we can safely assume that the measured characteristics of the households and villages at resettlement determine the structure of the CBOs and not the opposite. This causal clarity comes at a cost, however. By necessity, the study focuses on a special type of village, those created by government officials selecting applicant households and assigning them to a specific location. This raises the question of external validity, i.e., the extent to which our findings apply beyond the bounds of Zimbabwe's resettlement program. We believe that they provide useful insights—or perhaps points of comparison—for many similar schemes elsewhere in the world, such as the resettlement of internal and international refugees, the resettlement of people displaced by public works projects (e.g., dams) or natural calamities (e.g., earthquake or tsunami), and the forced villagization policies pursued in some countries.

What, if anything, do our findings tell us about CBO formation in African villages in general? Historically, most African villages were formed when people joined small hamlets spearheaded by one or two households that settled in the wild. In many cases, late comers to these communities share ties of kinship with the initial pioneers. However, we know that "stranger" households also join such emergent communities (see, for instance, Dekker, 2004 on the formation of non-resettled villages in Zimbabwe). Hence, some of our findings are likely to be of general interest, especially those relating to when each household settled in the history of a village.

Other findings suggest that CBO activity is not elitist and that even members of female-headed households, a group often excluded from village life in developing countries, are not excluded from CBO membership with male-headed households. This might best be taken as evidence of what is possible when villages are created rapidly by government officials. In a world where refugee status is on the increase, so too are settlements of this type. In the case studied here, the resettlement program followed a victory over a regime inherited from colonialism. By many of those who resettled, the program would have been perceived as an opportunity to start afresh and as the division of the spoils of war in accordance with the socialist ideals of the new nation. It is unclear whether resettled refugees perceive their own predicament in such a positive light. But they could be encouraged to perceive it as an individual and collective fresh start.

NOTES

1. This issue is very clearly illustrated by an example, taken from the work of Snijders (2007): consider social networks among youths and the decision to take up smoking. Are youths forming links with others who then influence them to smoke, or are smokers linking with each other? Put differently, does the link cause smoking or smoking cause the link?

2. Resettlement was voluntary and candidate settlers were free to apply to the government to participate to the program. The government stipulated the following criteria for resettlement, by order of priority: (i) refugees and people displaced by the war; (ii) the landless; and (iii) those with insufficient land to maintain themselves and their families (Kinsey, 1982). Additionally, applicants had to be aged between 25 and 55 years, married or widowed, and not in formal employment. Challenges to this formal selection process by groups of squatters have been reported (Kinsey, 1982), but they do not apply to the villages/schemes in our sample. Settlers in our sample predominantly come from traditional villages or curfew villages, with a minority coming from towns, commercial farms, or outside Zimbabwe (Dekker, 2004)

3. Related household could signal their relatedness when applying and thereby increase their chances of being assigned to the same village. Also, our data indicate that latecomers were often related to existing inhabitants, suggesting some self-selection among latecomers (Dekker, 2004).

4. The selection process was random in the sense that households generally did not self-select into villages, nor did government officials deliberately form poorer or richer villages, or villages with more or less kinship ties among inhabitants. Nonetheless, villages did not have exactly the same composition when they started out (see Table 12). If fact, in this paper we show some location specific differences in the mixing of households. What is important for the analysis in this paper is that households had no or almost no previous engagement with one another before they settled, and thus could not have become similar because they were members of the same CBO. To the extent that previous engagement did exist (e.g., in terms of lineage or kinship ties), we control for it in the analysis.

5. The theoretical link between kinship and altruism was first established by Hamilton (1964). For non-human species there is now a considerable body of evidence supporting Hamilton's hypothesis (Brembs 2001).

6. The P2 Logistic model (Lazega and van Duijn; 1997) is another, frequently used specification. However, it is designed specifically for the analysis of directed ties. Co-memberships are undirected by definition.

7. To see why, suppose that individuals with large values of z join more and/or bigger CBOs. This implies that $E[m_{ij}]$ is an increasing function of $z_i + z_j$ and hence that β_4 is positive.

8. Ideally, we would have estimated Logits. However, in several cases the dyadic robust standard errors turn out to be unstable when the Logit is applied.

9. The 15 study villages were randomly selected during the first round of the ZRHDS in 1983. They were chosen to be representative of agricultural resettled villages in terms of size and location. The average number of settlers per scheme was 423 across the 12 schemes from which our two schemes were selected. The two schemes in our study include 289 and 537 settlers, respectively.

10. Crop cultivation is the main activity in both areas and there are no farmers who raise livestock only, as is the case in West-Africa (see also Arcand and Fafchamps (2012) or parts of southern Zimbabwe.

11. Kinsey, Burger, and Gunning (1998), Gunning, Hoddinott, Kinsey, and Owens (2000), and Hoogeveen and Kinsey (2001) discuss the ZRHDS surveys in detail.

12. The households were surveyed in 1983, 1987, 1992, 1992, 1994, 1995, 1996, 1997, 1998, 1999 and 2000.

13. Note that we do not report on the education of the household heads. This is because such data is missing for a significant proportion of the households in our sample, 12–40% depending on the year. In many cases this arises because family members can recall the sex and calculate the age of a deceased household heads, but never knew their education level. The data we do have indicate that the average household head had around six years of education, i.e., had been to primary school.

14. There are no tractors in the villages even today.

15. CBO data were also collected in another seven resettled villages and six traditional villages. In the former the ZRHDS panel survey only includes a random sample of households, not the whole population. This makes the data less suitable for dyadic analysis, given the possible sampling bias. In the traditional villages, only the year 2000 was enumerated. Barr (2004) presents a non-dyadic analysis of the full dataset, focusing on why the resettled villages appear not to be converging to the levels of civil-social activity observed in the traditional villages.

16. The fieldwork instruments are available from the authors.

17. Owing to the instability of the political environment in Zimbabwe at the time of the fieldwork, we decided not to ask about political parties—and to not even record any information about them if they were mentioned.

18. We exclude groups that are associated with crop marketing boards and corporations that supply villages with inputs and purchase their cash crops because the impetus for their creation is primarily external and they involve little interaction and require little trust between villagers.

19. The quality of the social CBO data is brought into question by the finding that the social CBOs rarely draw their membership from more than a couple of households and often from only one. Further, co-memberships in social CBOs do not predict who chooses to group with whom in a lab-type experiment conducted in 2001 (Barr *et al.*, 2012). We suspect that the difference in data quality between economic and social CBOs is due to the relatively ephemeral nature of social CBOs and to the importance of the economic CBOs.

20. Initially, we considered including religious co-memberships as a regressor in the analysis. Unfortunately we do not have data on households' religious affiliations at the time of resettlement and we know that at least some individuals changed religious affiliation over the study period. Further, a dyadic analysis of religious co-memberships indicates that, in the early years after resettlement, they are associated with geographical proximity. Since the spatial location of resettled households was exogenously determined, we are concerned that religious co-membership has a strong endogenous element, even though we cannot rule out that it is partly pre-determined.

21. An analysis of individual interconnectedness is also precluded by the fact that initial wealth is only measured at the household level.

22. More precisely, in the first year in which both i and j had settled in the village.

23. The time of settlement is the first year in which both i and j had settled in the village

24. A model containing a linear time trend in place of the year dummies and interactions between that trend and each of the other regressors was also strongly rejected by the data in favor of the fully saturated model.

25. An alternative approach is to use as dependent variable the estimated village fixed effects from Section 5. Doing so yields very similar results, so we omit them here for the sake of brevity.

26. We tested whether different results are obtained if we pool the data across years. Given how similar livestock coefficients are across years, we do not expect our conclusions to be affected, and this is what we find.

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APPENDIX A

See Tables 11–14

Table 11. *Descriptive characteristics of the organisations in the CBO dataset*

Category: No. of organizations:	All villages 309	vil1 13	vil2 22	vil3 22	vil4 11	vil5 12	vil6 16	vil7 21	vil8 18	vil9 21	vil10 38	vil11 33	vil12 22	vil13 22	vil14 21	vil15 17
Economic	127	3	7	5	3	4	3	11	8	8	23	13	10	13	10	6
ROSCA	48	2	3	2	1	2	2	2	4	4	5	7	5	3	3	3
agriculture	35	1	1	1	–	1	–	4	2	3	8	–	1	5	6	2
Education & health	10	–	1	1	–	–	–	1	1	1	1	2	1	1	–	–
crafts	14	–	1	–	–	1	–	2	1	–	5	2	1	1	–	–
feminist groups	6	–	–	–	–	–	1	1	–	–	1	–	1	1	–	1
other	16	–	1	1	2	–	–	1	–	–	3	2	1	2	3	–
Social	46	3	5	4	0	2	3	4	3	7	3	5	4	1	1	1
cultural	11	1	1	1	–	1	1	1	1	1	1	2	–	–	–	–
sports	20	1	2	2	–	1	2	2	1	3	1	1	2	–	1	1
Education & health	15	1	2	1	–	–	–	1	1	3	1	2	2	1	–	–
Religious	136	7	10	13	8	6	10	6	7	6	12	15	8	8	10	10
Start up period																
1980–1987	196	8	18	15	7	7	11	10	12	15	25	16	20	16	17	9
Economic	82	2	7	4	0	2	3	5	4	6	15	4	9	10	9	2
Social	31	2	4	2	0	2	1	2	3	4	1	4	4	1	1	0
Religious	92	4	7	9	7	3	7	3	5	5	9	8	7	5	7	7
1988–1995	46	4	4	3	2	3	3	8	1	3	4	8	1	0	1	1
Economic	13	0	0	0	2	0	0	3	1	1	1	4	0	–	0	1
Social	7	1	1	0	0	0	0	2	0	1	1	1	0	–	0	0
Religious	26	3	3	3	0	3	3	3	0	1	2	3	1	–	1	0
1996–2000	57	1	0	4	2	2	2	3	5	3	9	9	1	6	3	7
Economic	30	1	–	1	1	2	0	3	3	1	7	5	1	3	1	3
Social	8	0	–	2	0	0	2	0	0	2	1	0	0	0	0	1
Religious	18	0	–	1	1	0	0	0	2	0	1	4	0	3	2	3
Average start up year																
Economic		1987	1984	1986	1994	1991	1983	1989	1990	1985	1988	1991	1984	1984	1986	1992
Social		1985	1985	1990	–	1982	1991	1985	1983	1989	1990	1984	1985	1981	1985	1996
Religious		1987	1985	1986	1983	1986	1984	1985	1985	1981	1984	1989	1983	1989	1986	1987

Source: CBO data.

Table 12. *Village means of baseline household characteristics*

	vil1	vil2	vil3	vil4	vil5	vil6	vil7	vil8	vil9	vil10	vil11	vil12	vil13	vil14	vil15	*p*-value *F*-test diff in means
Relatedness	0.011	0.004	0.006	0.030	0.010	0.013	0.027	0.007	0.020	0.007	0.003	0.018	0.011	0.011	0.002	0.0001
From a curfew village	0.714	0.593	0.357	0.733	0.600	0.600	0.766	0.606	0.848	0.023	0.043	0.000	0.059	0.063	0.000	0.0001
Foreign	0.071	0.074	0.214	0.267	0.200	0.200	0.085	0.000	0.060	0.023	0.021	0.000	0.000	0.063	0.090	0.0005
Livestock holdings	2.76	2.00	1.84	5.35	1.69	2.70	2.63	2.38	2.74	3.72	3.03	2.99	3.45	4.01	7.25	0.0810
Household size	7.9	7.8	9.6	9.8	9.5	7.8	7.8	7.3	7.6	7.0	5.9	7.2	8.1	7.6	7.2	0.0001
Age head	45.0	41.6	42.9	49.9	43.4	49.5	42.8	43.0	38.9	42.8	40.0	42.6	45.0	53.0	48.3	0.0112
Female head	0.142	0.000	0.070	0.000	0.000	0.040	0.020	0.188	0.032	0.211	0.070	0.060	0.193	0.207	0.050	0.0100
No. of hh with same lineage in village	6.5	6.6	4.0	5.7	3.1	8.2	18.5	9.9	12.0	10.5	9.0	11.4	9.5	8.8	4.3	0.0100

Source of data: combined data set.

Table 13. *The relationship between the network of economic CBO co-membership and livestock holdings on arrival, with controls*

Dependent variable = 1 if dyad shares at least one co-membership in a CBO with an economic purpose, 0 otherwise

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Diff. livestock	−0.004	−0.002	0.001	0.002	0.002	0.004	0.003	0.003	0.003	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)
Sum livestock	0.004*	0.001	0.001	0.000	−0.001	−0.003	−0.003	−0.002	−0.002	0.001
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Diff. fem head	0.014	0.005	0.015	0.016	0.014	0.008	0.011	0.007	0.022	0.021
	(0.021)	(0.017)	(0.015)	(0.023)	(0.022)	(0.021)	(0.020)	(0.018)	(0.022)	(0.023)
Sum fem head	−0.002	−0.017	−0.021	−0.020	−0.034	−0.027	−0.026	−0.011	−0.026	−0.030
	(0.040)	(0.041)	(0.037)	(0.035)	(0.039)	(0.041)	(0.041)	(0.043)	(0.042)	(0.046)
Diff. age head	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	−0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Sum age head	0.000	0.000	0.000	−0.001	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Diff. hh size	−0.044	−0.023	−0.034	−0.034	−0.017	−0.021	−0.027	−0.030	−0.035	−0.035
	(0.034)	(0.027)	(0.030)	(0.032)	(0.031)	(0.033)	(0.033)	(0.032)	(0.032)	(0.033)
Sum hh size	−0.029	−0.008	−0.012	−0.016	−0.003	−0.005	−0.001	−0.001	−0.002	−0.008
	(0.024)	(0.020)	(0.020)	(0.020)	(0.021)	(0.022)	(0.021)	(0.021)	(0.020)	(0.021)
Diff. foreign	0.004	0.003	0.003	0.003	0.007**	0.002	0.004	0.004	0.003	0.005
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)
Sum foreign	0.001	0.002	0.003	0.004	0.000	0.002	0.003	0.002	0.004	0.003
	(0.004)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Diff. from curfew	−0.020	−0.017	−0.028	−0.025	−0.020	0.000	0.014	0.008	0.007	−0.010
	(0.026)	(0.025)	(0.026)	(0.027)	(0.026)	(0.025)	(0.019)	(0.019)	(0.019)	(0.022)
Sum from curfew	0.021	0.022	0.029	0.020	0.020	0.027	0.037*	0.033	0.030	0.015
	(0.029)	(0.027)	(0.027)	(0.027)	(0.026)	(0.025)	(0.022)	(0.022)	(0.022)	(0.024)
Diff. yrs settled	−0.021	−0.020	−0.010	−0.005	−0.031*	−0.029*	−0.032**	−0.028*	−0.028**	−0.027**
	(0.018)	(0.017)	(0.015)	(0.014)	(0.018)	(0.017)	(0.015)	(0.015)	(0.014)	(0.013)
Sum yrs settled	0.014	0.018	0.021	0.019	0.036**	0.036**	0.030*	0.023	0.018	0.018
	(0.020)	(0.017)	(0.015)	(0.014)	(0.017)	(0.016)	(0.016)	(0.014)	(0.014)	(0.012)
Relatedness	0.016	0.064	0.065	0.103*	0.103*	0.070	0.067	0.073	0.080	0.106*
	(0.050)	(0.045)	(0.045)	(0.055)	(0.061)	(0.057)	(0.054)	(0.056)	(0.056)	(0.054)
Shared lineage	0.007	0.004	0.000	0.007	0.020	0.019	0.014	0.017	0.006	0.006
	(0.022)	(0.021)	(0.023)	(0.019)	(0.026)	(0.026)	(0.026)	(0.027)	(0.026)	(0.027)
Geog. distance	−0.055*	−0.047*	−0.035	−0.027	−0.028	−0.019	−0.013	0.002	0.007	0.006
	(0.029)	(0.028)	(0.025)	(0.026)	(0.026)	(0.025)	(0.024)	(0.021)	(0.022)	(0.022)
Village f.e.s inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village f.e.s sig at	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
R-squared	0.6074	0.6500	0.6214	0.5999	0.5363	0.4783	0.4733	0.4981	0.4965	0.4917
Observations	12228	13138	13218	13606	13690	13972	14130	14280	14362	14464

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Diff. livestock	0.001	0.002	0.001	0.002	0.001	0.001	0.002	0.004	0.003
	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Sum livestock	0.000	−0.001	0.000	−0.001	0.000	0.000	−0.001	−0.002	−0.002
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Diff. fem head	0.025	0.026	0.034	0.031	0.027	0.036*	0.037***	0.029*	0.025*
	(0.024)	(0.023)	(0.021)	(0.026)	(0.023)	(0.020)	(0.010)	(0.016)	(0.015)
Sum fem head	−0.033	−0.044	−0.054	−0.040	−0.038	−0.041	−0.043	−0.019	−0.016
	(0.045)	(0.044)	(0.043)	(0.045)	(0.041)	(0.041)	(0.038)	(0.039)	(0.036)
Diff. age head	−0.001	−0.001	0.000	0.000	0.000	0.000	0.000	0.001	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Sum age head	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Diff. hh size	−0.026	−0.037	−0.038	−0.016	−0.013	−0.005	−0.001	−0.016	−0.004
	(0.037)	(0.033)	(0.038)	(0.031)	(0.030)	(0.025)	(0.022)	(0.027)	(0.024)
Sum hh size	−0.002	0.006	−0.009	0.005	0.006	0.004	−0.006	0.006	−0.005
	(0.021)	(0.020)	(0.021)	(0.016)	(0.015)	(0.015)	(0.015)	(0.022)	(0.014)
Diff. foreign	0.006*	0.005	0.003	0.004	0.005	0.005	0.004	0.001	0.000
	(0.004)	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Sum foreign	0.004	0.004	0.005	0.003	0.002	0.002	0.001	0.004	0.003
	(0.004)	(0.004)	(0.004)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Diff. from curfew	0.007	0.008	0.007	0.022	0.026	0.026*	0.016	0.029**	0.030***
	(0.025)	(0.024)	(0.023)	(0.017)	(0.016)	(0.016)	(0.017)	(0.012)	(0.010)

(*continued on next page*)

Table 13 (*continued*)

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Sum from curfew	0.030	0.026	0.025	0.014	0.015	0.015	0.009	0.009	0.008
	(0.025)	(0.025)	(0.024)	(0.023)	(0.022)	(0.021)	(0.022)	(0.019)	(0.017)
Diff. yrs settled	−0.031***	−0.034***	−0.031***	−0.028***	−0.023**	−0.027***	−0.017**	−0.010	−0.007
	(0.011)	(0.012)	(0.010)	(0.010)	(0.009)	(0.009)	(0.008)	(0.007)	(0.006)
Sum yrs settled	0.015	0.016	0.009	0.011	0.009	0.014	0.008	0.007	0.002
	(0.012)	(0.012)	(0.011)	(0.010)	(0.010)	(0.010)	(0.009)	(0.008)	(0.007)
Relatedness	0.058	0.030	0.005	0.004	−0.005	0.004	0.023	−0.004	0.008
	(0.055)	(0.052)	(0.055)	(0.051)	(0.053)	(0.054)	(0.045)	(0.055)	(0.053)
Shared lineage	0.015	0.012	0.018	0.016	0.012	0.026	0.009	0.024	0.033
	(0.030)	(0.030)	(0.030)	(0.032)	(0.031)	(0.029)	(0.028)	(0.029)	(0.031)
Geog. distance	−0.028	−0.034	−0.045	−0.051	−0.049	−0.070*	−0.077**	−0.078**	−0.097***
	(0.032)	(0.032)	(0.035)	(0.035)	(0.034)	(0.037)	(0.037)	(0.033)	(0.034)
Village f.e.s inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village f.e.s sig at	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
R-squared	0.3281	0.3150	0.2796	0.2784	0.2920	0.2806	0.2681	0.2433	0.2562
Observations	14,748	14,748	14,790	14,790	14,918	14,946	15,010	15,010	15,010

Notes: Coefficients and standard errors from linear probability models reported; standard errors (in brackets) adjusted to account for interdependence across dyads sharing a common element by clustering by dyads; * – sig. at 10%; ** – sig. at 5%.
Source: combined data.

Table 14. *The relationship between economic CBO co-memberships and livestock holdings on arrival, with controls*

Dependent variable = number of co-memberships in economic CBOs that dyad shares										
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Diff. livestock	−0.002	0.001	0.005	0.006	0.007	0.007	0.006	0.003	0.005	0.002
	(0.004)	(0.005)	(0.005)	(0.005)	(0.006)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Sum livestock	0.004	−0.003	−0.003	−0.003	−0.004	−0.005	−0.004	0.000	−0.001	0.002
	(0.004)	(0.005)	(0.006)	(0.006)	(0.007)	(0.008)	(0.007)	(0.008)	(0.008)	(0.008)
Diff. fem head	0.055**	0.045**	0.057**	0.061**	0.076***	0.073**	0.062**	0.068*	0.076**	0.067*
	(0.024)	(0.018)	(0.025)	(0.029)	(0.029)	(0.033)	(0.029)	(0.036)	(0.036)	(0.038)
Sum fem head	−0.017	−0.025	−0.056	−0.047	−0.069	−0.084	−0.071	−0.074	−0.088	−0.098
	(0.042)	(0.043)	(0.052)	(0.056)	(0.065)	(0.073)	(0.075)	(0.073)	(0.070)	(0.074)
Diff. age head	0.000	0.000	−0.001	−0.001	−0.001	−0.002	−0.002	−0.001	−0.001	−0.001
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Sum age head	0.001	0.001	0.000	0.000	0.001	0.001	0.001	0.001	0.001	0.000
	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Diff. hh size	0.003	0.000	−0.001	−0.003	0.005	0.001	0.002	0.001	−0.001	0.002
	(0.006)	(0.008)	(0.008)	(0.008)	(0.009)	(0.010)	(0.009)	(0.009)	(0.009)	(0.009)
Sum hh size	0.002	0.006	0.006	0.012	0.011	0.011	0.013	0.011	0.013	0.012
	(0.006)	(0.008)	(0.008)	(0.008)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Diff. foreign	−0.082	−0.042	−0.161*	−0.171	−0.096	−0.104	−0.134	−0.145	−0.161	−0.202*
	(0.050)	(0.077)	(0.083)	(0.085)	(0.092)	(0.108)	(0.109)	(0.109)	(0.108)	(0.103)
Sum foreign	0.038	0.058	0.136	0.145	0.099	0.087	0.076	0.094	0.097	0.156
	(0.073)	(0.092)	(0.101)	(0.099)	(0.119)	(0.122)	(0.122)	(0.117)	(0.115)	(0.104)
Diff. from curfew	−0.006	−0.043	−0.057	−0.043	−0.037	−0.017	−0.006	−0.014	−0.014	−0.022
	(0.038)	(0.060)	(0.064)	(0.065)	(0.064)	(0.073)	(0.068)	(0.068)	(0.068)	(0.067)
Sum from curfew	−0.011	0.022	0.028	0.008	0.007	−0.014	−0.002	−0.009	−0.022	−0.028
	(0.048)	(0.059)	(0.063)	(0.066)	(0.071)	(0.074)	(0.072)	(0.071)	(0.070)	(0.070)
Diff. yrs settled	−0.038	−0.044	−0.042	−0.033	−0.071**	−0.073**	−0.082***	−0.078***	−0.072***	−0.060**
	(0.026)	(0.031)	(0.030)	(0.028)	(0.035)	(0.032)	(0.029)	(0.028)	(0.027)	(0.026)
Sum yrs settled	0.047	0.047	0.045	0.038	0.066	0.055	0.046	0.037	0.028	0.023
	(0.032)	(0.038)	(0.038)	(0.032)	(0.036)	(0.032)	(0.031)	(0.029)	(0.028)	(0.025)
Relatedness	0.011	0.168	0.115	0.238	0.209	0.180	0.194	0.148	0.144	0.188
	(0.099)	(0.168)	(0.170)	(0.172)	(0.180)	(0.186)	(0.176)	(0.175)	(0.175)	(0.176)
Shared lineage	0.003	−0.013	−0.006	0.001	0.022	0.039	0.034	0.026	0.019	0.021
	(0.036)	(0.042)	(0.055)	(0.057)	(0.065)	(0.075)	(0.074)	(0.077)	(0.074)	(0.073)
Geog. distance	−0.092	−0.120	−0.140	−0.150*	−0.108	−0.082	−0.068	−0.087	−0.080	−0.067
	(0.062)	(0.084)	(0.089)	(0.091)	(0.096)	(0.098)	(0.098)	(0.102)	(0.102)	(0.102)
Village f.e.s inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village f.e.s sig at	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%

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Table 14 (*continued*)

Dependent variable = number of co-memberships in economic CBOs that dyad shares

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
R-squared	0.5744	0.6102	0.5794	0.5606	0.5151	0.4789	0.4805	0.4979	0.5006	0.4944
Observations	12228	13138	13218	13606	13690	13972	14130	14280	14362	14464

	1992	1993	1994	1995	1996	1997	1998	1999	2000
Diff. livestock	0.002	0.004	0.004	0.007	0.007	0.010	0.013	0.007	0.005
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.008)	(0.009)	(0.012)	(0.013)
Sum livestock	0.003	0.000	−0.001	−0.005	−0.006	−0.008	−0.010	−0.002	0.003
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.011)	(0.013)	(0.014)
Diff. fem head	0.079**	0.083***	0.094***	0.113***	0.130**	0.131**	0.125**	0.071	0.110
	(0.034)	(0.031)	(0.028)	(0.041)	(0.052)	(0.054)	(0.051)	(0.066)	(0.068)
Sum fem head	−0.111	−0.125*	−0.136**	−0.140	−0.141*	−0.149*	−0.124	−0.022	−0.032
	(0.070)	(0.066)	(0.067)	(0.074)	(0.071)	(0.083)	(0.108)	(0.136)	(0.143)
Diff. age head	−0.001	−0.002	−0.002	−0.003	−0.002	−0.003	−0.002	0.000	0.000
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Sum age head	0.001	0.001	0.002	0.001	0.001	0.001	0.002	0.001	0.001
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Diff. hh size	0.003	0.003	−0.001	0.001	0.000	−0.001	0.000	−0.007	−0.007
	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)	(0.010)	(0.011)	(0.012)	(0.013)
Sum hh size	0.012	0.011	0.010	0.012	0.010	0.010	0.014	0.022	0.018
	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.013)	(0.015)	(0.015)
Diff. foreign	−0.182*	−0.193*	−0.198	−0.146	−0.090	−0.074	−0.105	−0.106	−0.048
	(0.105)	(0.104)	(0.121)	(0.097)	(0.101)	(0.092)	(0.106)	(0.120)	(0.126)
Sum foreign	0.156	0.144	0.111	0.107	0.092	0.067	0.030	−0.031	−0.029
	(0.098)	(0.095)	(0.101)	(0.091)	(0.082)	(0.087)	(0.094)	(0.086)	(0.089)
Diff. from curfew	0.000	0.002	−0.004	0.049	0.043	0.036	0.004	−0.004	−0.050
	(0.070)	(0.069)	(0.079)	(0.060)	(0.059)	(0.059)	(0.074)	(0.088)	(0.103)
Sum from curfew	−0.007	−0.017	−0.020	−0.093	−0.065	−0.046	−0.086	−0.083	−0.033
	(0.071)	(0.072)	(0.076)	(0.081)	(0.078)	(0.076)	(0.084)	(0.094)	(0.104)
Diff. yrs settled	−0.056***	−0.060***	−0.057***	−0.049**	−0.041**	−0.047**	−0.029	−0.026	−0.024
	(0.022)	(0.022)	(0.019)	(0.020)	(0.019)	(0.020)	(0.023)	(0.023)	(0.025)
Sum yrs settled	0.015	0.017	0.010	0.016	0.007	0.017	0.015	0.026	0.023
	(0.022)	(0.022)	(0.020)	(0.021)	(0.019)	(0.019)	(0.021)	(0.029)	(0.032)
Relatedness	0.142	0.099	0.149	0.293	0.271	0.279	0.316	0.279	0.217
	(0.175)	(0.176)	(0.183)	(0.239)	(0.242)	(0.244)	(0.245)	(0.292)	(0.292)
Shared lineage	0.039	0.031	0.018	0.012	0.005	0.040	−0.018	−0.007	0.023
	(0.074)	(0.073)	(0.072)	(0.080)	(0.081)	(0.086)	(0.100)	(0.116)	(0.126)
Geog. distance	−0.109	−0.102	−0.129	−0.193	−0.158	−0.194	−0.182	−0.132	−0.225
	(0.106)	(0.106)	(0.109)	(0.127)	(0.124)	(0.125)	(0.138)	(0.144)	(0.150)
Village f.e.s inc.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Village f.e.s sig at	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%	0.01%
R-squared	0.4465	0.4386	0.4590	0.4496	0.4436	0.4378	0.3859	0.3647	0.3272
Observations	14,748	14,748	14,790	14,790	14,918	14,946	15,010	15,010	15,010

Notes: Coefficients and standard errors from linear regressions reported; standard errors (in brackets) adjusted to account for interdependence across dyads sharing a common element by clustering by dyads; * – sig. at 10%; ** – sig. at 5%; *** – sig. at 1%.
Source: combined data.